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The Oil Man's Calendar

NOV.	
13-17	**American Petroleum Institute, Stevens Hotel, Chicago.**
14	**25-Year Club, Stevens Hotel, Chicago.**
15-17	**American Institute of Chemical Engineers, Providence, R. I.**
DEC.	
4- 7	**American Society of Mechanical Engineers, Philadelphia.**
4- 9	**Exposition of Chemical Industries, Grand Central Palace, New York.**
14-15	**Petroleum Electric Power Association, Texas State Hotel, Houston, Texas.**
APR.	
10-12	**American Association of Petroleum Geologists, Chicago.**
11-12	**American Petroleum Institute, Eastern District, Division of Production, Columbus, Ohio.**

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CONGRATULATIONS
A·P·I

We congratulate the American Petroleum Institute for its prominent role in the development and stabilization of so important an industry as oil . . . which industry we, too, are proud to have had the privilege of serving in so many of its various phases.

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THE OIL WEEKLY

NOVEMBER 13, 1939

VOLUME 95 NUMBER 10

The Week's Panorama

Near 1929 Peak . . . . . .

The nation's industrial activity now is near the all-time peak that was reached in 1929. The Federal Reserve Board index of production expanded in October to 120 percent of the 1923-1925 average, from 111 in September. The peak for the 1936-1937 recovery was 121, reached in December, 1936. The 1929 peak was 125, reached in June.

Present Outlook . . . . . .

The Federal Reserve Board noted a recent decline in new orders in some lines, although it stated that "in many industries the volume of orders on hand appears to be large enough to sustain activity at a high level at least to the end of the year." A note of caution against over-expanding inventories was sounded at the same time, as the board found that consumption was not keeping up with production.

Forecast Optimistic . . . . . .

The Bureau of Agricultural Economics, which has an impressive record for accuracy of forecasts, has predicted for 1940 a moderate increase of industrial and business activity, better markets for most farm products, slightly higher wholesale commodity prices, and larger income for consumers. The bureau based the view partially on prospective larger exports to Europe's warring countries and to neutrals cut off from European trade. But domestic prospects also were regarded as favorable, as the bureau foresaw increased automobile sales; larger capital expenditures by railroads, utilities, and manufacturers; and more confident buying policies of business men.

Fluctuations Loom . . . . . .

Although 1940 is expected to be a good business year, it is anticipated that there may be some sharp fluctuations of industrial activity because of war-time uncertainties and because of current increases of inventories arising out of war-stimulated production.

Arms Ban Lifted . . . . . .

The repeal of the arms embargo is not expected to have any great effect on industry in general in the United States. Aircraft and munition manufacturers will be given business they could not have had without the change in the law, and shipping companies will be obliged to abandon routes to the war areas.

Oil Exports to Rise . . . . . .

A. G. White, chief of the petroleum economics division of the Bureau of Mines, last week told the Cole investigating committee that foreign buying of oil products probably would increase within two or three months. He said that part of an expected 10 percent gain in crude exports might be reflected in the bureau's estimates of demand for December. White's assistant, H. A. Breakey, explained that war buying has been held down so far by large stocks that belligerents accumulated in the past few years and by strict rationing of supplies in the combatant countries; but he predicted that demand would increase as soon as the belligerents could solve shipping difficulties.

British-French Buying . . . .

It has been estimated that Great Britain and France are ready to place orders for $1,000,000,000 of American goods in the early future. The British embassy at Washington has disclosed that Britain and France will coordinate war purchases and thus avoid bidding against each other, and that Britain will set up a "British supply board in Canada and the United States," for handling purchases. Competitive buying of England and France ran prices up sharply in the World War.

Oil Earnings Fair . . . . . .

Oil company earnings for 1939 probably will exceed even the most hopeful expectations of a few months ago, when a general crude price decline was barely averted. It now appears that fourth quarter profits of 1939 will be better than those of 1938; that the final quarter of this year may be more profitable than the fair third quarter; that some companies may show larger net income for all of 1939 than for 1938.

No Oil Shortage . . . . . .

The threat of an ultimate shortage of oil has been pushed further into the background through the recent addition of two states to the list of those having petroleum production. In the midst of excitement over Mississippi's oil field, Nebraska has offered a wildcat producer in circumstances that are promising also for the non-producing state of Iowa and for negligibly producing Missouri. The Nebraska pumping well is in the Forest City Basin, which embraces corners of Iowa, Missouri, Kansas, and Nebraska. . . . Other non-producing states that have some oil possibilities include the Dakotas, Washington, Oregon, Arizona, Alabama, Florida, Georgia and perhaps others. Utah and Tennessee have slight production but may furnish more.

Program of Wide Scope Petroleum Institute

THE program for the Twentieth Annual Meeting of the American Petroleum Institute, which is of a wider scope than ever before, indicates that the affair not only will be the largest gathering of oil men this year, but also the most active in the Institute's history.

More than 3000 oil men are expected to attend the convention, scheduled for November 13 to 17 at the Stevens Hotel in Chicago. There will be more than 50 addresses at the two general sessions and 16 group meetings. In addition there will be approximately 100 committee meetings. An innovation this year will be the convening during the Institute's sessions of an Interstate Conference on Automotive Taxation, sponsored by the American Petroleum Industries Committee. This undoubtedly will increase the attendance by bringing to the meeting automotive-equipment and tax experts, state officials, and members of the petroleum-industries committees from 28 states.

Another innovation will be the first annual reception and dinner of the petroleum industry's newly-organized Twenty-Five Year Club —which will be held Tuesday evening, November 14.

Still an additional innovation is the increased attention that will be devoted to public relations. Besides one group session meeting, this subject will be discussed at one of the general sessions.

Guest speakers for the Institute's two general session meetings include Representative William P. Cole, Jr., of Maryland; Governor Leon C. Phillips of Oklahoma; Joseph E. Pogue, petroleum economist for Chase National Bank, New York; Paul G. Hoffman, of the Studebaker Corporation, South Bend, Ind.; and Barclay Acheson, associate editor of Reader's Digest.

The two general sessions also will hear Axtell J. Byles, president of the American Petroleum Institute, and Victor H. Scales, director of public relations for the Institute.

Representative Cole and Governor Phillips spoke before the annual meeting of the Independent Petroleum Association of America in Fort Worth last month, and drew considerable applause for their discussion of federal control. Cole, who introduced the federal control act now being considered and who is conducting hearings to determine the needs of the industry, asserted the measure would not hamper the industry or interfere with state functions as had been predicted. On the other hand, Governor Phillips declared state's rights would be usurped and would mark the passing of the independent operator. In a way they are making a repeat performance before the oil industry, but it is expected to be a high light of the American Petroleum Institute meeting.

The Division of Production will hold four group sessions, and the

Political Speakers

Harris & Ewing Photo.

WILLIAM P. COLE, JR., member of the U. S. House from Maryland, will be one of the general session speakers. He is chairman of the congressional oil subcommittee and introduced the so-called Cole oil control bill now under consideration.

As a member of the oil group of his committee he has taken a prominent part in all congressional legislation affecting the petroleum industry of the past nine years. In 1934 he served as chairman of the group which made an investigation of the oil industry which now is being brought up-to-date at the request of President Roosevelt preliminary to the consideration of federal control legislation. He also played a prominent part in the enactment and extension of the Connally Act and ratification of the Interstate Compact.

LEON C. PHILLIPS, governor of Oklahoma, will speak at a general session.

This red-haired Missouri-born son, graduated from the University of Oklahoma law school and married on the same day. Two days later he opened a law office at Okemah, Oklahoma. He was elected to the state legislature in 1932, and set a record by being named speaker of the house during his second term. This was in 1935. During his third term, in 1937, he was minority leader and opposed policies of Governor Marland.

He won the Democratic nomination for governor in July, and was elected in November, 1938. Virtually all of his program was adopted by the seventeenth legislature. This platform called for drastic retrenchment of expenses and consolidation of departments.

Arranged for American Annual Convention

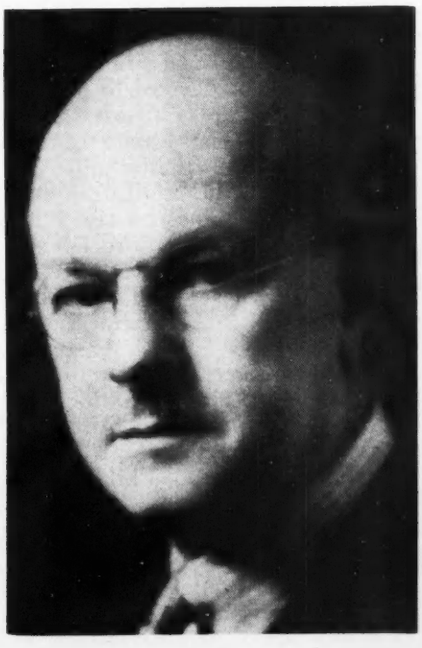
Division of Refining will have two. These group sessions will be on November 16 and 17.

New importance is attached to the meeting of the Board of Councillors and to elections this year; because revision of the Institute's by-laws has placed membership of the Board of Directors at 110, plus ex-officio members comprising elected officers of the Institute, and a completely new board is to be elected on the basis of a revised schedule of representation. Eight national officers of the Institute, and 40 members of production and refining divisional general committees, also are to be elected.

The annual dinner of the Institute will be held Thursday evening, November 16. There will be speakers. A program of entertainment has been arranged. Tickets may be obtained at the Institute's registration desk.

There will be one group session on public relations. This will be

Business World Speakers



JOSEPH E. POGUE, vice president, Chase National Bank, New York, N. Y., will deliver an address at the Thursday afternoon General Session.

Pogue, born in Raleigh, N. C., was granted the degrees of A.B. and M.S. by the University of North Carolina, Ph.D. by Yale University, and was also a special student at University of Heidelberg. He has served as assistant curator of mineralogy and petrology at Smithsonian Institution; associate geologist with the U. S. Gelogical Survey; associate professor of geology and mineralogy at Northwestern University; and assistant director, Bureau of Oil Conservation, U. S. Fuel Administration during the World War. Later he served as manager of the department of economic research with Sinclair Consolidated Oil Corporation, leaving there to set up his own office as consulting engineer. Employed by Chase National Bank in 1936, his work in that organization has continued to be in the field of petroleum economics. In April, 1938, he was appointed a member of the advisory committee on economics by the Interstate Oil Compact Commission and in June, 1939, was appointed member of the Minerals Advisory Committee to the Army and Navy Munitions Board.

PAUL G. HOFFMAN, president, The Studebaker Corporation, South Bend, Ind., speaks at the Wednesday afternoon General Session.

Hoffman was born on April 26, 1891, at Chicago, Ill. He began his business career as a retail automobile salesman first in Chicago and then in Los Angeles, Calif., where he was sales manager and later branch manager of Studebaker branch during the period from 1915 until he left to serve in the World War. After the war, he rejoined Studebaker and later became their distributor at Los Angeles. Elected vice president in 1925, since 1935 he has been president of the corporation.

Hoffman, prominent for many years in the field of automotive safety, is president of the Automotive Safety Foundation, author of two books, "Used Car Merchandising" and "Seven Roads to Safety" and author of magazine articles on the subject of safety.

BARCLAY ACHESON, associated editor, The Reader's Digest, New York, N. Y., will speak on "Freedom, the Mental Climate for Progress," at the Thursday afternoon General Session in connection with the American Petroleum Institute's Twentieth Annual Meeting in the Stevens Hotel at Chicago, Ill., November 13 to 17, 1939.

Acheson was born in Canada and educated in the United States. He has been decorated by foreign governments and given honorary degrees by the educational institutions of America. A constant student of world affairs, he was Director General of overseas work for the Near East Foundation where he gained first-hand acquaintance with European conditions through ten years of close study in the field. Before the World War, he was appointed to the faculty of the American University in Beirut, Syria. During the crucial months of July and August, 1914, he was in Switzerland, France and England watching the mobilization of troops and the attendant political turmoil. After the war, he cooperated with the Refugee Settlement Commission of the League of Nations, and saw service in Russia, Egypt, Palestine, Syria, Iraq, and Turkey.

Thursday, November 16, at 10 a. m., with W. S. S. Rodgers, The Texas Company, New York City, presiding. "The Philosophy of Industrial Relations" will be the topic of H. H. Anderson, Shell Oil Company, Inc., St. Louis, Mo. W. N. Humphries, The Ohio Oil Company, Findlay, Ohio, will speak on "Helpful Petroleum." H. K. Boice, of Benton and Bowles, Inc., New York, N. Y., will address the group on the subject of "Public Relations in Advertising."

Division of Production

The first group meeting of the Division of Production will be held Thursday morning, November 16, when two sessions will be conducted simultaneously.

One of these meetings will be devoted to pipe line transportation problems, with Walter F. Rogers, Gulf Oil Corporation, Houston, as the presiding officer. The following addresses will be presented at this meeting: "Internal Corrosion of Gasoline Pipe Lines," by W. A. Schulze and R. C. Alden, Phillips Petroleum Company, Bartlesville, Okla.; "A Comparison of Methods for Estimating the Corrosivity of Soils," by K. H. Logan, National Bureau of Standards, Washington, D. C., and E. A. Koenig, Magnolia Pipe Line Company, Dallas, Texas; "Cooperative Problems Involved in Cathodic Protection," by L. F. Scherer, The Texas Pipe Line Company, Houston, Texas.

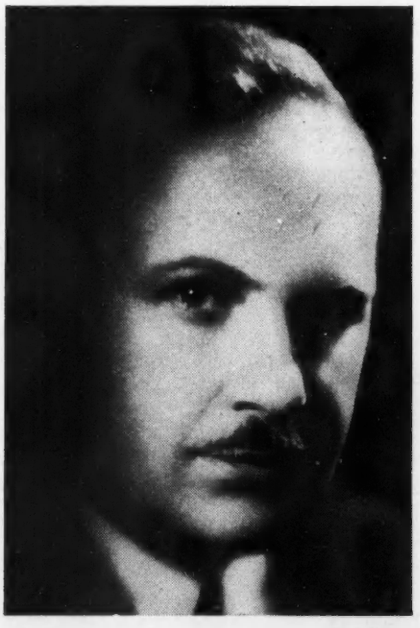
The other Thursday morning meeting of the Division of Production will be a symposium on collapsing pressures and setting depths of casing. B. B. Wescott, Gulf Research and Development Company, Pittsburgh, Pa., will be the presiding officer. Addresses at this session will include the following: "A Rational Expression for the Critical Collapsing Pressure of Pipe Under External Pressure," by W. O. Clinedinst, National Tube Company, Pittsburgh, Pa.; "A Theoretical and Experimental Approach to the Problem of Collapse of Deep-Well Casing," by J. L. Holmquist, Spang-Chalfant Division, The National Supply Company, Ambridge, Pa., and A. Nadai, Westinghouse Research Laboratories, East Pittsburgh, Pa.; "Combining Bending and Hoop Stresses to Determine Collapsing Pressure of Oil-Country Tubular Goods," by W. C. Main, Youngstown Sheet & Tube Company, Los Angeles, Calif.; "Joint and Collapse Strength of A. P. I. Grades H-40 and J-55 Electrically-Welded Casing," by T. J. Crawford, Republic Steel Corporation, Youngstown, Ohio.

Institute Speakers

AXTEL J. BYLES, president of the American Petroleum Institute since 1933, will speak Wednesday afternoon at a general session.

Byles is a product of the oil industry, having been born near the site of the Drake well. He was educated at Titusville, Pa., high school, Lawrenceville School, and Princeton University, which granted the degree Bachelor of Science in 1903. He read law in Pittsburgh and was admitted to the bar in 1905.

He became counsel for Tide Water Associated Oil Company, then president, and chairman of the board of Associated Oil Company. He resigned these positions in 1933 to become the eighth president of the Institute.



VICTOR H. SCALES, director of public relations of the American Petroleum Institute, will address the general session on Thursday afternoon.

Scales, who joined the Institute in 1927 as assistant director of public relations, also directs the Institute's publicity work and has taken an active part in the American Petroleum Industries Committee.

The second group session of the Division of Production will be Friday morning, November 17, when M. Albertson, Shell Oil Company, Inc., Houston, will preside over a discussion of drilling problems. Papers will be delivered by: "Viscosity Determination of Subsurface Samples of Crude Oil," by P. G. Exline and H. J. Endean, Gulf Research & Development Company, Pittsburgh, Pa.; "Partial Volumetric Behavior of the Lighter Paraffin Hydrocarbons in the Gas Phase," by B. H. Sage and W. N. Lacey, California Institute of Technology, Pasadena, Calif.; "The Carter Pressure Core Barrel," by B. W. Sewell, The Carter Oil Company, Tulsa, Okla.; "Bureau of Mines-A. P. I. Pressure Core Barrel," by D. B. Taliaferro and R. E. Heithecker, Bureau of Mines, Bartlesville, Okla.

Paul D. Torrey, The Sloan and Zook Company, Inc., Houston, will preside over the fourth and final meeting of the Division of Production which will be held Friday afternoon and will be devoted to production practices. Papers at this session will include: "The Range of Application of Gas Lift Methods," by E. C. Babson, Union Oil Company of California, Compton, Calif.; "Effect of Varying Well-Bore Diameters in California Oil-Sand Reservoirs," by Ernest K. Parks, Los Angeles, Calif.; "Load Rating for Roller Bearings," by C. R. Athy, International Derrick & Equipment Company, Columbus, Ohio; and "Protective Coatings," by C. F. Rassweiler, E. P. DuPont de Nemours & Company, Philadelphia.

Auto Tax Program

Seventeen speakers will address the Interstate Conference on Automotive Taxation. The morning session on Monday, November 13, will hear: "The Road Traveled and the Road Ahead," by B. H. Markham, American Petroleum Industries Committee, New York; "Current Trends and Probable Future Trends in Taxation, Public Finance and Expenditures" by Dr. Roswell Magill, professor of law, Columbia University, New York; and "Highway Program for the United States" by Thomas H. MacDonald, U. S. Public Road Administration, Washington, D. C.

The automotive taxation group at the afternoon session on November 13 will hear five speakers. Dr. Finla G. Crawford, Dean of the

College of Liberal Arts, Syracuse, University, Syracuse, New York, will discuss "The Gasoline Tax—Its Use and Abuse." "Highway Bonds and Their Effect Upon Taxes," will be the subject of Norman S. Taber, consultant on public finance, New York, N. Y. Joseph L. McLaughlin, Division of Motor Fuels, New Jersey Tax Department, Trenton, N. J., is to speak on "Gasoline-Tax Administration." Francis Johnson of the Iowa Farm Bureau Federation, Des Moines, Iowa, will address the assembly on "The Farmer and the Highway." The fifth address of this session will be delivered by Major Roy F. Britton, Automobile Club of Missouri, St. Louis, on "The American Motorist and the Gasoline Tax."

On Tuesday morning, November 14, the Interstate Conference on Automotive Taxation will listen to: "Constitutional Safeguards Against Diversion," by Murray D. Van Wagoner, State Highway Commissioner of Michigan, Lansing, Mich.; "Highway Barriers and the Need for Cooperation in Their Removal," by Chester H. Gray, National Highway Users Conference, Washington, D. C.; "Problems of Truck Transportation," by Ted V. Rodgers, American Trucking Association, Inc., Washington, D. C.; "The Alcohol-Gasoline Proposal," by Conger Reynolds, chairman, committee on Motor Fuels, American Petroleum Institute.

Tuesday afternoon the automotive taxation group will assemble again. This time to hear: "Compulsory Gasoline Grading," by Gustav Egloff, Universal Oil Products Company, Chicago; "Newspapers and Good Public Relations," by William L. Ayers, Chicago Journal of Commerce, Chicago; and "Broadcasting Your News," by John D. Fitzgerald, Columbia Broadcasting System, New York City, N. Y.

The final group meeting of the automotive tax experts will be Wednesday morning, November 15. At this time Russell B. Brown, Independent Petroleum Association of America, will discuss "The Need for a United Tax Front in the Petroleum Industry," and Fred A. Eldean, Tax Foundation, will speak on "Taxation and the Citizen."

There will be two group meetings on automotive transportation, one on economics and the other on the use of meters.

The division of refining will hold two group sessions, one on Thursday morning and the other Friday morning.

Preside for Production Division

M. ALBERTSON was educated at Missouri School of Mines and the University of Chicago. After a few years in geological survey work and gold and silver mining, he entered the employ of Shell Oil Company, Inc., and for 20 years has been engaged in geological and engineering work. Today he is chief petroleum research engineer for the company, with headquarters in Houston.

Albertson will preside at the Division of Production group session on Friday morning.

BLAINE B. WESCOTT presides at the Division of Production group session on Thursday afternoon. Dr. Wescott entered Gulf Oil Corporation's newly organized research department, now known as Gulf Research & Development Corporation, in June, 1927, and has been associated with it ever since. Previously, he had engaged in industrial metallurgical research at Mellon Institute for six years. Graduated by Syracuse University and by the graduate school of the University of Pittsburgh.

PAUL D. TORREY, of Houston, who presides at the Friday afternoon group session of the Division of Production, is geologist in charge of exploration work in the Texas-Louisiana Gulf Coast for The Sloan and Zook Company.

After graduating from the University of Pittsburgh in 1925, Torrey served two years with the Oil and Gas Division of the U. S. Geological Survey. In 1927, he was with Northwestern Pennsylvania Oil Producers Association. He opened an office as consulting geologist and engineer specializing on secondary methods for increasing oil recovery in 1928. Employed by The Sloan and Zook Company at Bradford, Pa. in 1935, and later transferred to Houston.

WALTER F. ROGERS presides at a Division of Production group meeting Friday morning that will consider pipe line problems.

A chemical engineer, he was employed by Gulf Oil Corporation in 1926 as assistant chemical engineer of the experimental laboratory at its Port Arthur refinery. In 1927, he was transferred to Houston as Fellow under fellowship of Mellon Institute of Industrial Research, studying corrosion problems of the industry. In 1929, the fellowship was taken over directly by Gulf and merged with the chemical laboratory of the Houston office. Currently, he is engaged in chemical problems relating to pipe line and production engineering, with particular reference to corrosion problems.

Mississippi Is Experiencing A Real Oil Boom

Many oil men rush to area following Tinsley discovery, and play generates into intensive leasing campaign rivaling some earlier ones.

By BRAD MILLS, Associate Editor

MISSISSIPPI is in the midst of a real oil boom. Make no mistake about that. Regardless of the significance of the recent discovery of commercial oil production in Yazoo County, the play has generated into an intensive leasing and talking campaign that rivals some of the early Oklahoma and Texas booms. Hotels are overflowing, restaurants are overtaxed, map companies are dizzy from the rush of new business, farmers are trying to obtain drilling clauses with leases, geophysical crews are slipping through the woods, and in every hotel lobby John Doe will tell you he has a sure shot lease—for sale at the right price.

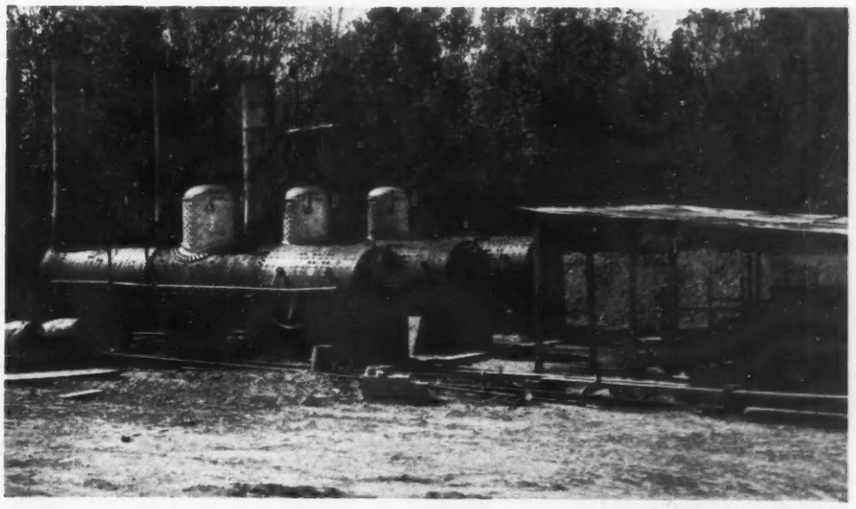
As might be expected in any boom, the larger and more conservative operators are attempting to arrive at a plan of action through geology and geophysical processes. The rank and file of the lease men and operators, however, are going strictly by geography. If a lease is five miles from the discovery well, it is worth a certain price. If 10 miles away, it is worth a much smaller price. Such prices are based only on distance and not on actual possibilties. But the fact remains that a good oil field has been found, and other fields may follow.

Oil men on the ground are divided into three camps. One believes that opening of the Tinsley field was the beginning of a long series of important developments that will make Mississippi a major oil producing state. Another believes that the Tinsley discovery was an accident and a freak belonging to 10 years of steady and unsuccessful development. The third group is neutral and simply tries to fit into the picture with the optimists and pessimists.

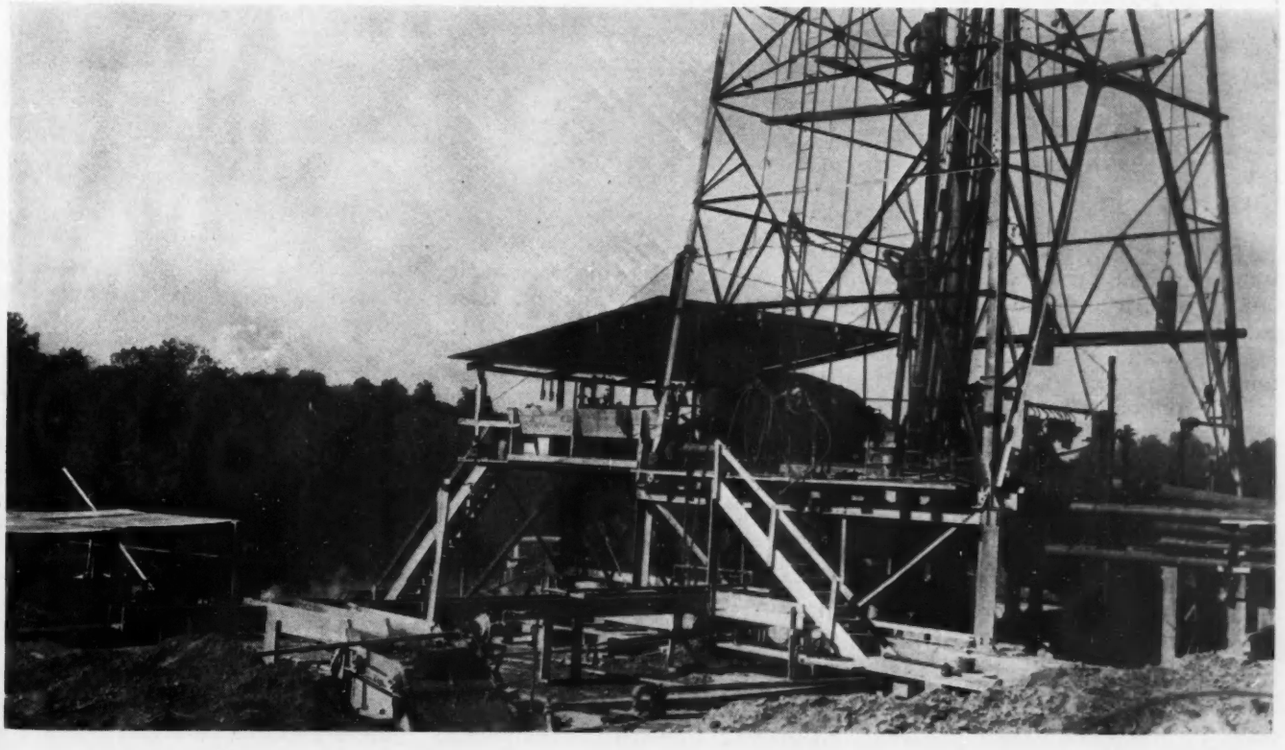
The natives are still wondering what it is all about, how long it will last, and in what direction the play will trend. Landowners on the whole are very receptive to lease deals and do not hold exaggerated ideas concerning values. In a few of the hottest areas, values have jumped some.

Geologists who know most about Mississippi are fearful to appear too optimistic. A 10-year search has yielded only one field and it appears too early to brag. Geology, both good and bad, has had its influence on Mississippi develop-

This is the well that started Mississippi's boom. It is Union Producing Company's Woodruff 1, which opened the Tinsley field. The well is flowing 300 barrels daily through 12/64-inch choke.



Both medium weight and heavy drilling outfits are being used in the Tinsley field. Rotary equipment used in North Louisiana, South Arkansas and Oklahoma is suitable for Mississippi drilling. Three 125-horsepower boilers, two 18- or 20-inch slush pumps, 122- and 136-foot derricks, and substantial draw works and rotary table are required. Formations drill easily. Scenes here are from some of the tests at Tinsley.



ments. Large operators have alternately turned sour and enthusiastic since 1903, but following every lean and unfavorable period a crop of faithful companies have re-entered the state.

Centers Around Yazoo

The present boom centers around the Tinsley discovery in Yazoo County and is primarily a Cretaceous play. Leasing is spotted and intensive within a radius of 40 miles of the new field. Leasing activity may break out overnight in areas worked by geophysical crews or in districts reported as promising by geologists. There is little rhyme or reason to a large part of the leasing play, the old checkerboard idea being the basis of operations where an operator wants to get his feet wet on short order.

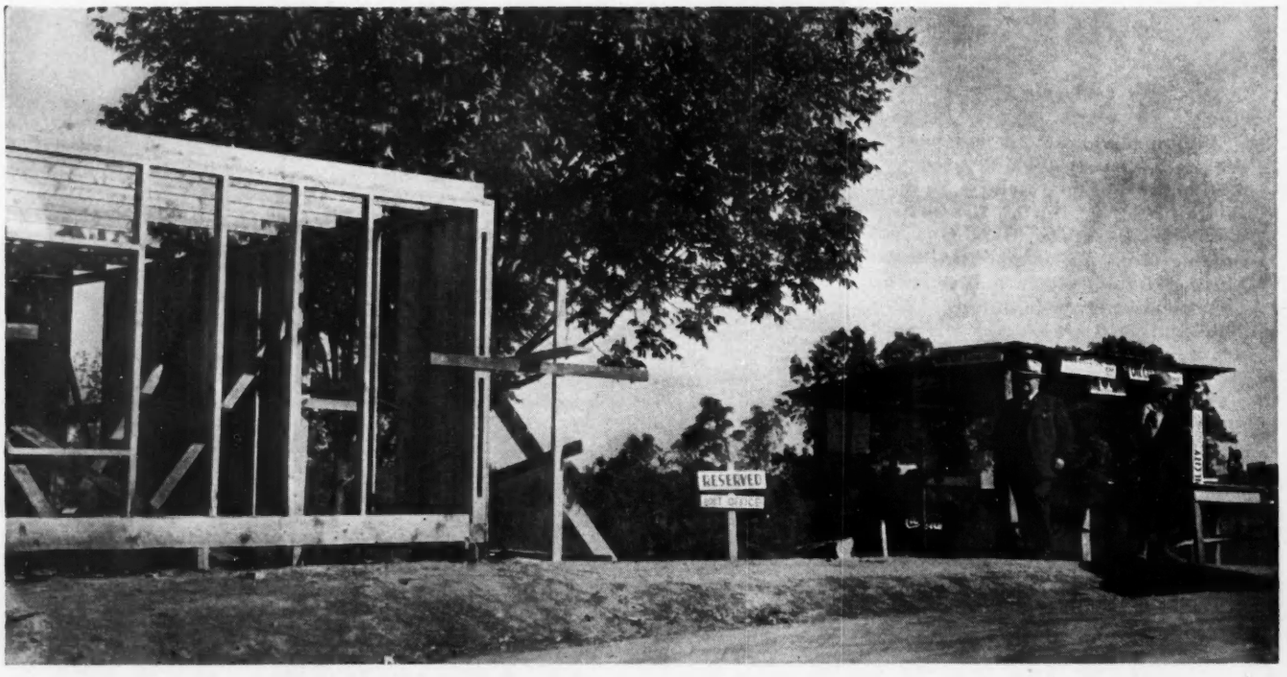
Jackson and Yazoo City are the centers of operations, with Jackson holding the edge because of its superior accomodations. Vicksburg is on one corner of a natural triangle formed by Jackson, Yazoo City and Vicksburg. An old civil war town and one rich in historic interest, Vicksburg lives mostly in the past and has not taken full advantages of the opportunities offered.

The road from Vicksburg to Jackson is excellent, and from Jackson to Yazoo City a new highway was opened recently. The road from Vicksburg to Yazoo City and the Tinsley oil field is very rough. Vicksburg, however, is the natural gateway from Louisiana and Texas. The cost for crossing the Vicksburg toll bridge is $1.25 each way, or $1.50 for the round trip if the round trip is made within 24 hours. Mississippi has completed a fine network of paved highways, and travel is generally easy. The gravel roads to the new oil field are rough but always passable.

Lease prices range from a few cents per acre in the isolated sections of the play to around $300 per acre near the discovery well at Tinsley. The following prices were recently quoted, with the discovery well as the hub: ½ mile, no leases available, royalty $400 to $600; ¾ mile, no leases available, royalty $300 to $475; one mile, no leases available, royalty $200 to $300; 1½ miles, leases $275 to $325, royalty $150 to $225; two miles, leases $140 to $240, royalty $125 to $225; three miles, leases $65 to $150, royalty $75 to $160; four miles, leases $25 to $75, royalty $35 to $75; five miles, leases $15 to $35, royalty $20 to $50.

Many landowners prefer drilling clauses to small bonuses, and leasing operations have been checked some because of this preference. Most of the leases carry the straight ⅛ royalty, Lease prices on tracts outside the five-mile limit increase and drop with developments and whims. Interest now centers more to the south and southwest than to the north and northwest of the discovery well, but the condition may be only temporary.

Land titles are no better or no worse in Mississippi than in other states, but many lawsuits are expected from heirs who are taking a sudden interest in relinquished lands that look promising because of oil possibilities. In one county the percentage of delinquent taxes was very high. The discovery of oil caused a rush to pay the taxes, and the county was more than half cleared of all delinquent tax accounts. Landowners recognized the cloud cast by unpaid taxes, and if no other good comes from the Tinsley oil discovery it has at least favorably affected tax payments in a dozen counties.



Several Provinces

Although the present play principally involves the Cretaceous in the central part of the state, there are two additional oil provinces that must be considered:

The Paleozoic area, lying in the northeast part of the state, offers distinct possibilities at reasonable depths, and a lively leasing campaign has been under way for some time in this district. The Amory gas field is located in this province.

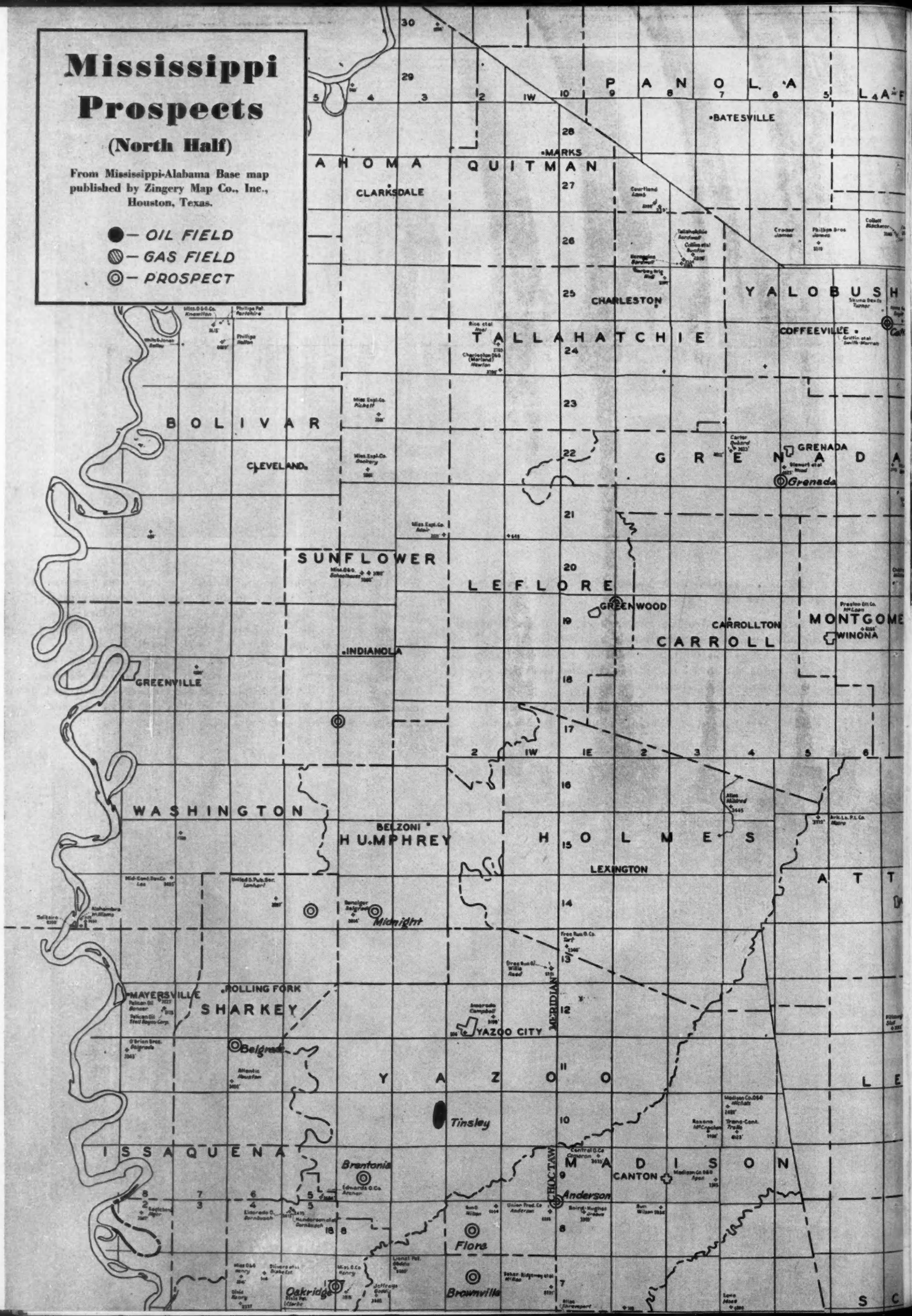
The southern part of Mississippi offers promise as a salt dome dis-

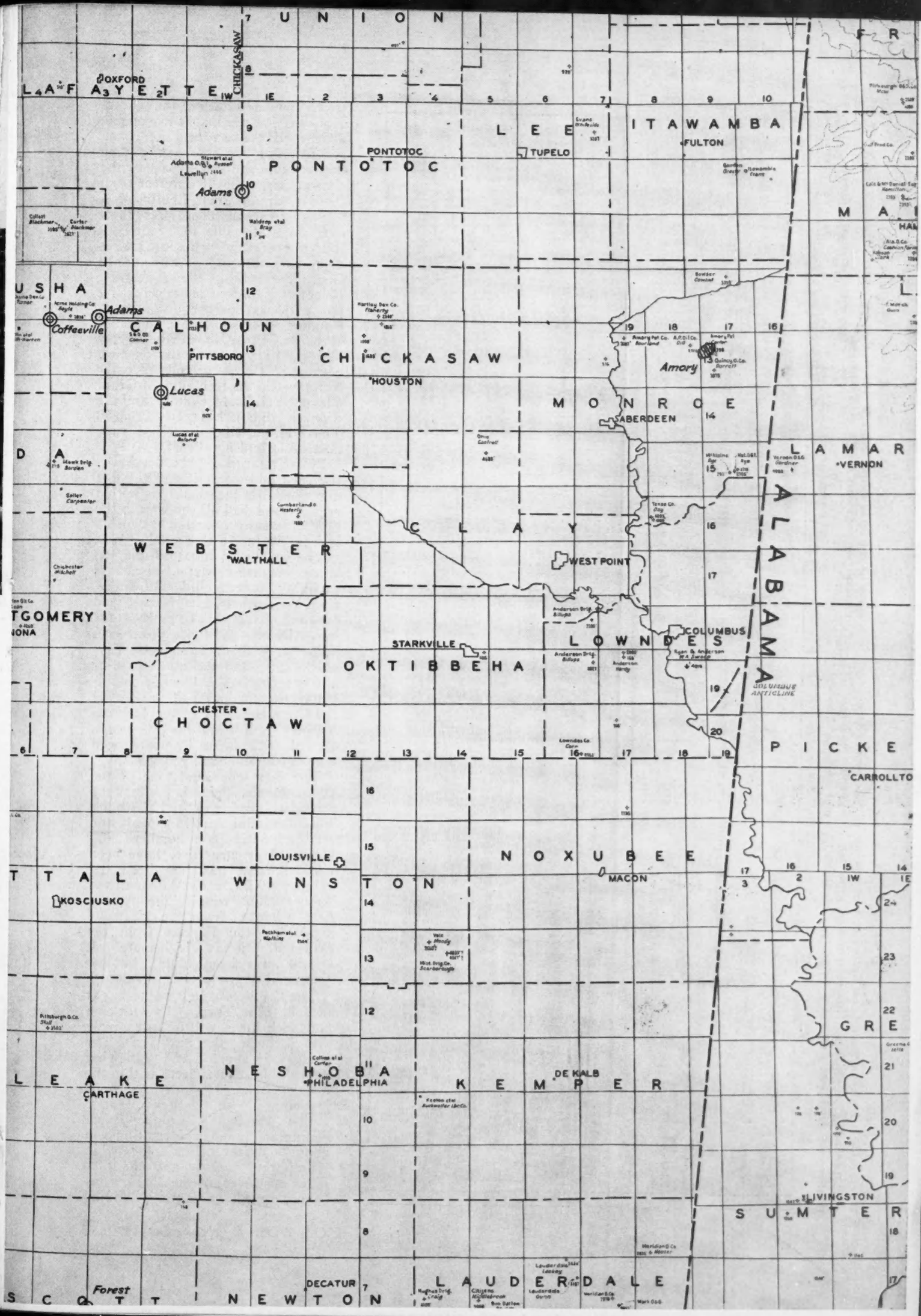
Jackson (above) and Yazoo City (below) are headquarters for Mississippi's oil boom.

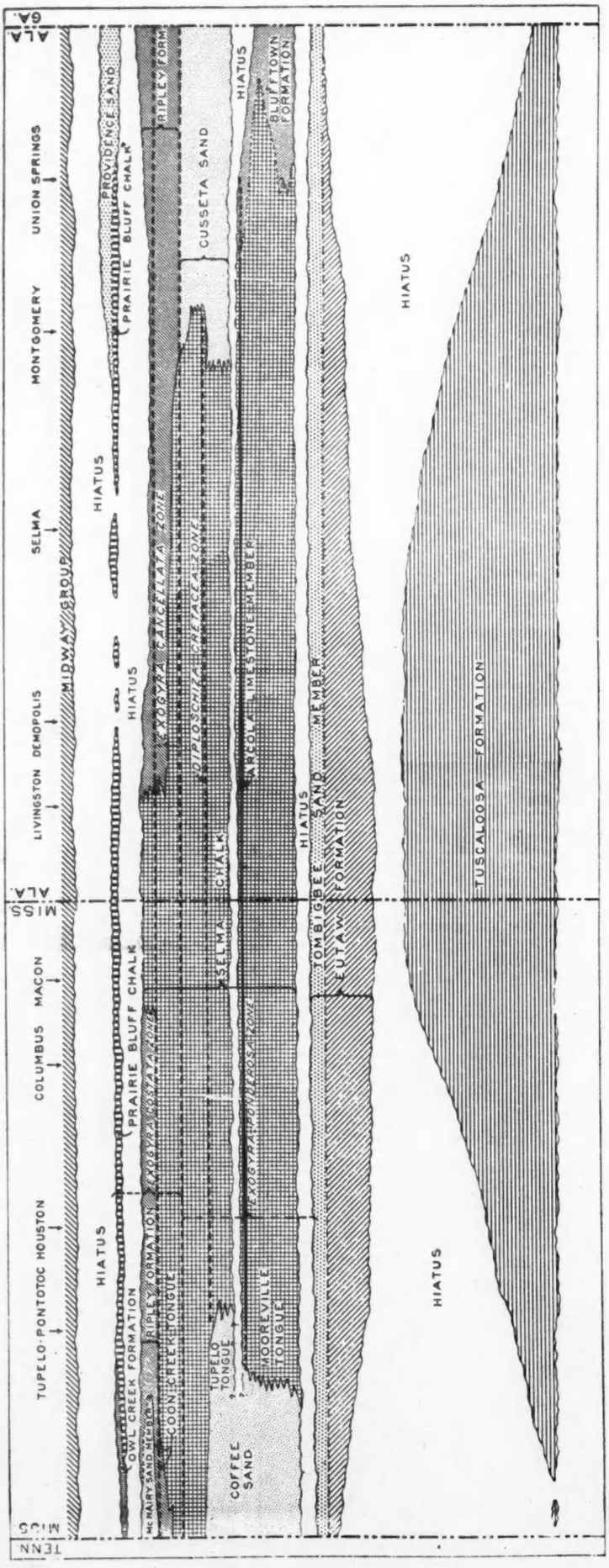
Jackson is the leading center because of its better accomodations. It has four hotels superior to those found in most cities of 100,000 population that offer reasonable rates. Being the state capital, this city also has other numerous advantages over smaller towns.

Yazoo City, located only 10 miles from the new Tinsley field, is trying hard to handle the people flocking there to get their feet in the boom. Telephone and telegraph receipts have increased more than 50 percent, incoming mail is much heavier than ever before, real estate values have jumped, and living costs have begun to rise. A large lease and royalty exchange is operated in the leading hotel.

On the opposite page is shown the first new town to spring up after the oil discovery at Tinsley. This is, or rather will be, Oil City, Mississippi. Streets are laid out and named, although little building has taken place as yet, and space has been reserved for a postoffice as shown.


Mississippi Prospects
(North Half)
From Mississippi-Alabama Base map published by Zingery Map Co., Inc., Houston, Texas.
— OIL FIELD
— GAS FIELD
— PROSPECT
PANOLA
BATESVILLE
MARKS
QUITMAN
CLARKSDALE
YALOBUSHA
CHARLESTON
TALLAHATCHIE
COFFEEVILLE
BOLIVAR
CLEVELAND
GRENADA
Grenada
SUNFLOWER
LEFLORE
GREENWOOD
CARROLLTON
MONTGOMERY
WINONA
CARROLL
INDIANOLA
GREENVILLE
WASHINGTON
BELZONI
HUMPHREY
HOLMES
LEXINGTON
ATTALA
Midnight
MAYERSVILLE
ROLLING FORK
SHARKEY
YAZOO CITY
Belgrade
YAZOO
Tinsley
ISSAQUENA
Brantonia
CHOCTAW
MERIDIAN
MADISON
CANTON
Anderson
Flora
Oakridge
Brownville


UNION
LAFAYETTE
OXFORD
CHICKASAW
PONTOTOC
LEE
ITAWAMBA
FULTON
TUPELO
Adams
Coffeeville
CALHOUN
PITTSBORO
CHICKASAW
HOUSTON
Amory
Lucas
MONROE
ABERDEEN
LAMAR
VERNON
CLAY
WEBSTER
WALTHALL
WEST POINT
ALABAMA
COLUMBUS ANTICLINE
STARKVILLE
OKTIBBEHA
LOWNDES
COLUMBUS
CHESTER
CHOCTAW
MONTGOMERY
PICKENS
CARROLLTON
LOUISVILLE
NOXUBEE
MACON
WINSTON
KOSCIUSKO
LEAKE
NESHOBA
PHILADELPHIA
CARTHAGE
KEMPER
DE KALB
GREENE
SUMTER
LIVINGSTON
SCOTT
NEWTON
DECATUR
LAUDERDALE
Forest



The Northwest Alabama Basin is considered by many as one of Mississippi's foremost producing possibilities. This cross-section gives the stratigraphic and age relations of the Upper Cretaceous formations of Mississippi and Alabama. The plane of the cross-section bears W 10° N. through central Alabama and N 15° W through the northeast corner of Mississippi.

—From "Stratigraphy of Upper Cretaceous Series in Mississippi and Alabama," by L. W. Stephenson and W. H. Monroe, in American Association of Petroleum Geologist Bulletin Vol. 22, No. 12.

trict, and in addition the Cretaceous may be reached at reasonable depths all the way to the coast. Conditions along the coast and in the extreme southwest part of the state are not radically different from those in parts of South Louisiana.

The Cretaceous is not present all over the state. The 1000-foot contour line of this formation passes diagonally through Lauderdale County, touching the southwest corner of Kemper County, crossing the northeast corner of Neshoba County, the southwest part of Winston County, the northeast corner of Attala County, the western corner of Choctaw and Webster counties, the eastern edge of Granada and Yalobusha County, and the western edge of Lafayette County. The contour line described runs northwest and southeast.

The Cretaceous gets deeper to the west and southwest of the line described, but it probably is within reach of the drill all the way to the Gulf. Present production at Tinsley is from a sand in this group.

The Paleozoic areat in the extreme northeast part of the state probably will include Lowndes, Clay, Chickashaw, Lee, Monroe and Itawamba counties. It extends far into Alabama and holds promise in Winston, Walker, Tuscaloosa, Fayette, Lamar and the north part of Pickens counties. Although considerably overshadowed at present by the Cretaceous play in the Jackson-Yazoo City district, this province is viewed with favor by many well known operators and geologists.

The Hartselle sandstone of the Upper Mississippian is perhaps the primary objective in the Paleozoics. This formation carries asphalt and oil along outcrops in northern Alabama. Many structures have been mapped, and gas has been developer at Fayette, Alabama, and Amory, Mississippi. The Amory field produces from the Hartselle sand, and the Fayette from the Pottsville. Many legitimate oil shows have been found, but no commercial production developed.

The Cretaceous belt, centering at present near Yazoo City, Jackson and Vicksburg, will be intensively drilled during the next year. The geology is spotted and somewhat doubtful in several areas within the main district. Igneous intrusions are common in the general area. Union Producing Company encountered igneous formations at about 3650 feet in Box 1, located in Humphreys County and about 25 miles northwest of the Tinsley discovery well. Atlantic Refining

Company found igneous rock at 3350 feet in Houston 1, Sharkey County, while Union Producing Company encountered an igneous formation at 3722 feet in the northern part of the same county.

Three magnetic uplifts in the vicinity of the Tinsley field have been mapped. Salt was encountered in Sun Oil Company's Lamar County test, Scanlan and Semmes 1, at 2205 feet, and in Hinds County top of the salt was found at 3026 feet in Southern Natural Gas Company's well near Edwards. The igneous intrusions and salt plugs have considerably complicated the geology of central Mississippi.

Operators will have to depend chiefly on geophysical and subsurface work in the flat areas and in districts offering limited surface contrasts. Surface geology has not yielded consistent results in such areas, and nearly all surface work is being checked with geophysics.

Current Geophysical Work in Mississippi

COUNTY	COMPANY	TYPE
Amite	Fohs Oil Company	Gravity Meter
Amite	Cities Service Oil Company	Gravity Meter
Carroll	J. P. Evans	Magnetometer
Carroll	Gulf Oil Corporation	Gravity Meter
Chickashaw	Carter Oil Company	Ref. Seis.
Copiah	Tide Water Associated Oil Company	Gravity Meter
Harrison	Phillips Petroleum Company	Ref. Seis.
Harrison	Phillips Petroleum Company	Ref. Seis.
Hinds	Wheelis et al	Ref. Seis.
Hinds	(See Footnote)*	Ref. Seis.
Issaquena	Fohs Oil Company	Gravity Meter
Issaquena	Magnolia Petroleum Company	Gravity Meter
Issaquena	Magnolia Petroleum Company	Gravity Meter
Jones	(See Footnote)*	Ref. Seis.
Madison	Carter Oil Company	Gravity Meter
Madison	Carter Oil Company	Gravity Meter
Madison	Amerada Petroleum Corporation	Ref. Seis.
Madison	Pure Oil Company	Ref. Seis.
Monroe	Carter Oil Company	Gravity Meter
Rankin	Willnut et al	Ref. Seis.
Yazoo	Amerada Petroleum Corporation	Soil Analysis
Yazoo	Kingwood et al	Ref. Seis.
Yazoo	(See Footnote)*	Ref. Seis.
Yazoo	Carter Oil Company	Ref. Seis.
Yazoo	Carter Oil Company	Ref. Seis.
Yazoo	Arkansas Fuel Oil Company	Gravity Meter
Yazoo	Sinclair Oil Company	Gravity Meter
Yazoo	Shell Oil Company	Gravity Meter
Yazoo	(See Footnote)*	Gravity Meter

* Indentity withheld.

W. P. A. Found Field

Full credit for discovery of the Tinsley dome goes to Frederic F. Mellen, supervising geologist of the W. P. A.—Mississippi State Geological Survey, in the minerals survey of Yazoo County. A memorandum for the press was released by the state geological survey on April 12, 1939, calling attention to the discovery by Mellen. Excerpts from the memorandum follow:

"The first indication of the structure was noted in October, 1938, when a thin bed of bentonite in the Yazoo Clay member of the Jackson formation, a bed regarded as a reliable stratigraphic marker, was determined to lie at 250 feet above sea level six miles southeast of Yazoo City; at 225 feet 2½ miles farther south; at 220 feet 9½ miles southwest of the latter place; and at elevations of normal southwest dip at points farther south. About the same elevation of the bentonite bed at two places 9½ miles apart along the dip was the significant fact.

"In checking his Yazoo County stratigraphy in February, 1939, Mellen discovered 12 feet of the Moodys Branch marl member of the Jackson formation on Perry Creek, a mile southwest of Tinsley, in an area where normally only younger Yazoo clays should have been exposed. A test hole revealed the base of the Moodys Branch marl six feet below water level; and 26 feet of the underlying silty, lignitic beds of the Yegua. At this place the base of the marl is 150 feet above sea level; in test C-34 in Yazoo City, 10 miles northeast, it is 15 feet above sea level; in a small stream 1½ miles south of Eden and about 9 miles northeast of Yazoo City, it is 160 feet above sea level. The inlayer of the marl on Perry Creek at an elevation of 150 feet above sea level shows, therefore, the Tinsley structure to have a northward closure of at least 135 feet—a structure so favorable for oil and gas accumulation as to warrant further geologic study and seismographic exploration.

"Although the existence of the Tinsley structure in a thickly loose-covered area is based largely on the evidence of a single outcrop of the Moodys Branch marl on Perry Creek, the structure of the higher bentonite bed tends to corroborate its presence; although all elevations are barometrically determined and are, consequently not precise, and although the area was leased, seismographically surveyed, and surrendered some 10 years ago, nevertheless the Tinsley structure be further explored, especially with a seismograph, to determine whether or not the subsurface structure is sufficiently pronounced to warrant a commercial test well, and especially should it be further explored for the reason that it lies less than 35 miles northwest of the Jackson gas field.

"Because of the great expense involved in oil and gas exploration and especially in deep drilling tests, this press notice is being released by William G. Morse, state geologist, who spent a few days in the field, and by Frederic F. Mellen, the discoverer, only on the condition that this article be accepted in its entirety."

Union Producing Company studied the press release, worked the structure with seismograph, obtained a block of acreage, drilled one well and discovered the Tinsley field only a few months later. The Tinsley dome has about 125 feet of surface uplift and around 600 feet of closure on top of the Selma chalk. The discovery well, Woodruff 1, showed the following section:

Surface to 57 feet, Jackson (clays).

57 feet to 1682 feet, Claiborne (sands, shales with hard streaks).

1682 feet to 3575 feet, Wilcox (sands, shales, boulders).

3575 feet to 4394 feet, Midway (shales, chalk on bottom).

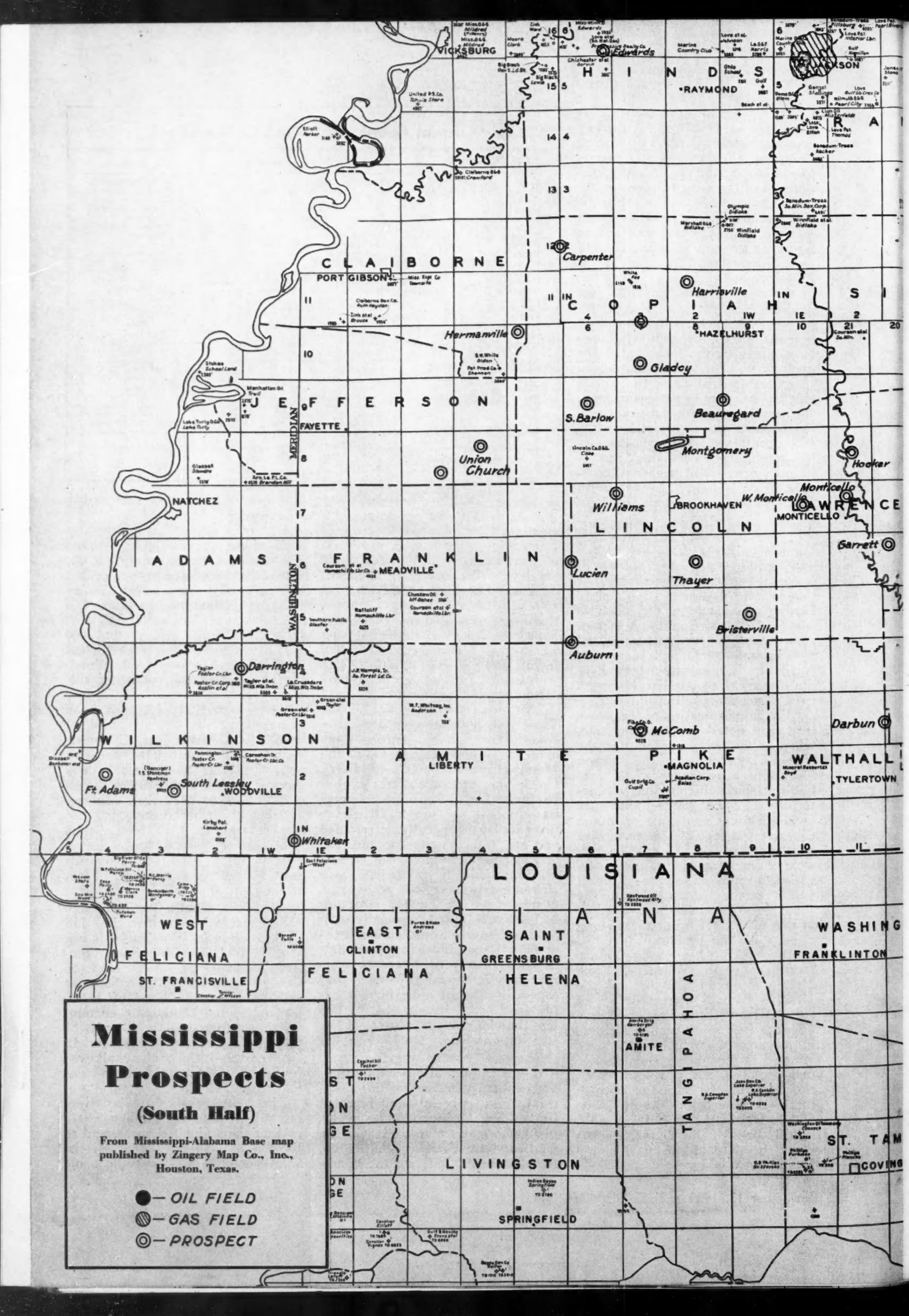
4394 feet to 4540 feet, Selma chalk.

4540 feet to 4560 feet, Woodruff sand (10 feet of saturation, 10 feet of lime and shale).

Thin Chalk Section

The exact reason for the thin chalk section in Woodruff 1 is not known. In Union Producing Company's Anderson A-1, Madison County wildcat drilled about 15 miles southeast of Woodruff 1, 930 feet of Selma chalk was encountered, as compared with only 54 feet in the Tinsley oil producer. In Anderson A-1, top of the chalk was found at 4350 and bottom was logged at 5280 feet.

The Selma chalk in Mississippi is equivalent to the Annona chalk in Louisiana and Arkansas, and to the Pecan Gap in Texas. Mississippi geology is almost the same



Mississippi Prospects

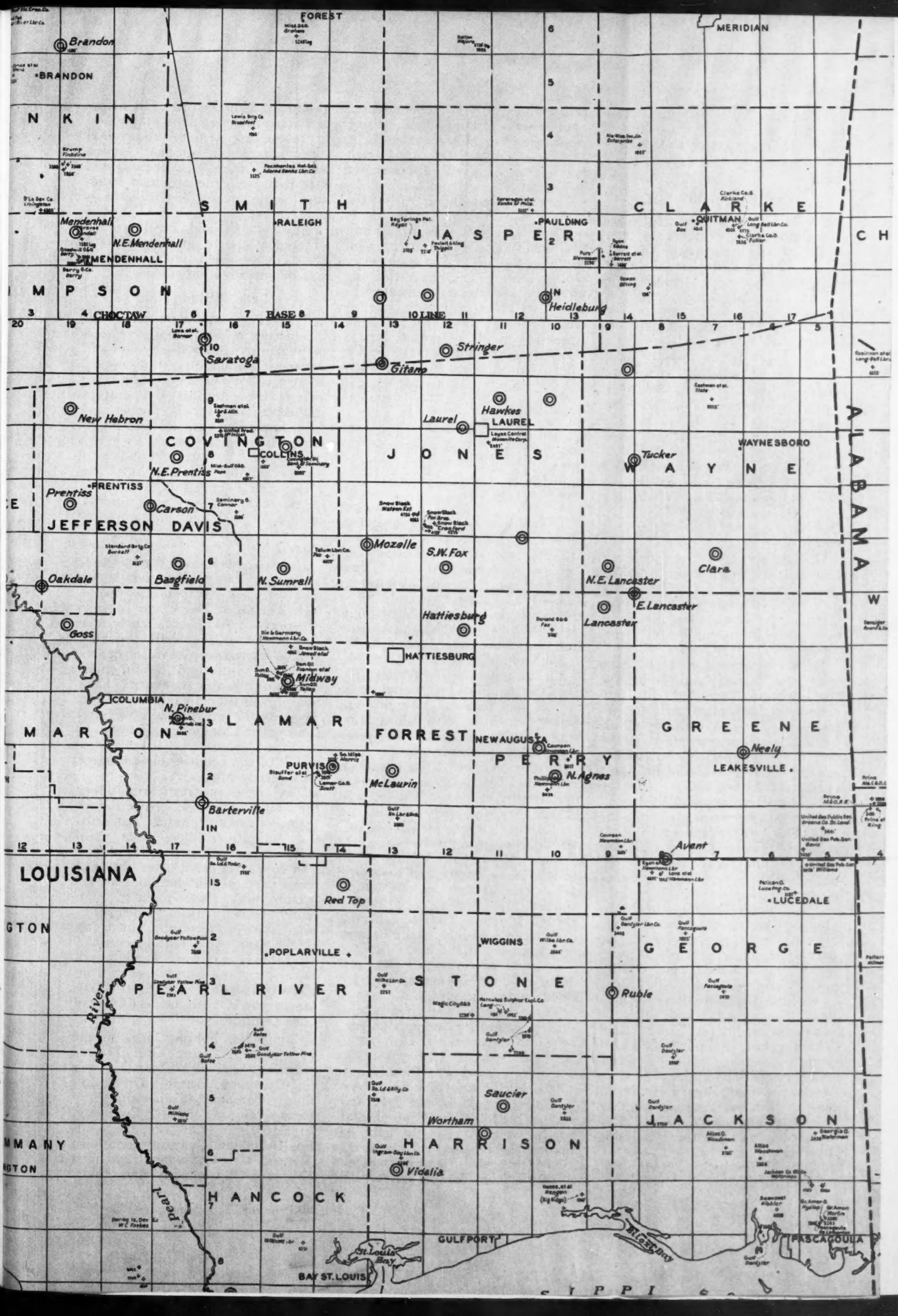
(South Half)

From Mississippi-Alabama Base map published by Zingery Map Co., Inc., Houston, Texas.

● — OIL FIELD

▨ — GAS FIELD

◎ — PROSPECT


FOREST
MERIDIAN
Brandon
BRANDON
N K I N
S M I T H
C L A R K E
Mendenhall
N.E.Mendenhall
MENDENHALL
RALEIGH
PAULDING
J A S P E R
QUITMAN
M P S O N
CHOCTAW
BASE 8
LINE
Heidleburg
Saratoga
Stringer
Citano
New Hebron
Laurel
Hawkes
LAUREL
COVINGTON
COLLINS
J O N E S
Tucker
WAYNESBORO
W A Y N E
N.E.Prentiss
PRENTISS
Prentiss
Carson
JEFFERSON DAVIS
Mozelle
S.W.Fox
Clara
Oakdale
Bassfield
N.Sumrall
N.E.Lancaster
E.Lancaster
Lancaster
Hattiesburg
Goss
HATTIESBURG
Midway
COLUMBIA
N.Pinebur
M A R I O N
L A M A R
FORREST
NEWAUGUSTA
G R E E N E
PERRY
Neely
LEAKESVILLE
PURVIS
McLaurin
N.Agnes
Barterville
Avent
LOUISIANA
Red Top
LUCEDALE
POPLARVILLE
WIGGINS
G E O R G E
P E A R L R I V E R
S T O N E
Ruble
Saucier
Wortham
J A C K S O N
H A R R I S O N
Vidalia
H A N C O C K
Pearl River
GULFPORT
PASCAGOULA
BAY ST. LOUIS
St. Louis Bay
ALABAMA

as that of South Arkansas and North Louisiana, so far as the average section is concerned. Reservoir conditions are different, however.

Drilling Conditions

Drilling in the Tinsley field is accomplished with remarkable ease. Making location, rigging up, cementing and tearing down equipment require almost as much time as actual drilling operations. The surface is rough and sharply broken in spots, and location costs are fairly high.

Although the discovery well, Woodruff 1, required about six weeks for completion at 4560 feet, the two subsequent producers were completed in much shorter drilling periods. Union Producing Company's Friley 1, now being drilled, was spudded October 28. On October 29 the well was drilling at 979 feet, and on October 30 drilling had been carried to 1540 feet. On October 31, 1540 feet of casing was run and cemented.

Drilling is largely done with fish tail and soft formation bits, although modified forms of rock bits give best service in the harder formations. As few as five bits have been used in a single well completed around 4550 feet.

Hard formation core heads have been used largely in coring for the lower markers, but wire line cores have been recovered satisfactorily in the latest drilling effort. Coring has been extensive in the first three completions, but with a greater definition of the field less coring will be needed.

First drilling costs probably will not prove representative for the field. The first wells were drilled at a cost of around $35,000 each, but lower drilling costs should be expected with more extensive development.

The average drilling time probably will be less than three weeks, certainly less than a month. A good part of the hole is washed down, but coring retards normal drilling speed.

Medium heavy to heavy rotary drilling equipment is best suited for rapid drilling in the Tinsley field. Three boilers, 18- and 20-inch slush pumps, 122- and 136-foot derricks, steel foundations and heavy draw works are used. Rotary equipment used in North Louisiana, South Arkansas, Oklahoma City and New Mexico is suitable for Mississippi operations.

Union Producing Company's Woodruff 1, the discovery well, was spudded July 18 and completed September 5, although final drilling depth was reached August 28. A 15-inch hole was started, 10¾-inch casing cemented with 450 sacks of cement at 608 feet, and 7-inch O.D. casing cemented 20 feet off bottom at 4540 feet with 200 sacks of cement. The cement was drilled out, 2½-inch tubing run and the well completed in normal manner without shooting or perforation of any kind. Bottom hole temperature was 164° F. Extensive coring in this well increased the elapsed drilling time, but no troublesome formations were encountered.

An analysis of oil from the Tinsley discovery well showed:

	Percent
Gasoline	27
Kerosene	10
Light gas oil	17
Heavy gas oil	32
Asphalt (100 pen.)	13
Loss	1
BS&W	0
	100

The oil has been going to Baton Rouge, via railway tank car, Standard Oil Company of Louisiana being the purchaser. Tinsley oil carries the same posting as Homer, Louisiana, crude. Several large storage tanks are being built along the railroad at Tinsley, and no pipe line plans have been announced.

No attempt was made to establish a full potential for Woodruff 1. The first producer has been flowing around 300 barrels daily through 12/64-inch choke, with tubing pressure of 265 pounds and casing pressure of 225 pounds.

Tinsley oil shows little gas in solution and practically no free gas is produced with the oil. The oil is 34 gravity, has an asphalt base and is a very desirable crude for general use.

Other producing wells in the field include Union Producing Company's Perry Estate 1, a 300-barrel producer through a 13/64-inch choke; and Jones & O'Brien's Steven 1, which has been beaned back to an 8/64-inch choke because of a limited outlet for the oil. The latter well, however, is a good producer and ran higher structurally than the discovery well.

Three wells are now being drilled. Union Producing Company failed to encounter the producing zone in Stevens 1, but found a deeper oil, sand was found above 4900 feet. This well is being used as a deeper test for the field. It is impossible to estimate the ultimate producing acreage in the field, but favorable conditions encountered in two of three drilling wells indicated a field of considerable extent. The producing zone known to lie below the first producing sand may prove a greater reserve than the original discovery. It is not yet known whether Tinsley is a deep seated salt dome or a true anticlinal structure formed from formations normally present.

The State Oil and Gas Board has ordered a 40-acre spacing rule for the Tinsley field and a 2000/1 gas/oil ratio will be enforced.

Leasing Campaign

The effects of commercial oil production in Mississippi have been far-reaching from both physical and economic standpoints. It has set off a tremendous leasing campaign that found a surplus of operators in Oklahoma, Illinois, Texas and Louisiana. The rush to Mississippi from other states has taxed every capacity in the state. Conditions are perfect for a whirlwind lease play, since a small army of experienced lease brokers and veteran buyers for oil companies only recently completed operations in Illinois.

Heavy leasing along the Jackson-Vicksburg-Yazoo City triangle has involved many responsible operators. The Glass Dome and Blakely prospect in Warren County are due for tests, and wells probably will be started soon in various parts of Yazoo, Hinds and Rankin counties. Four major operators have holdings in Blakely and the Bolton Brownsville prospects of Hinds County; and a number of prospects in Yazoo, Sharkey, Rankin, Leek and Madison counties have become particularly attractive.

The larger operators are bidding for low-priced lease protection in the most active counties, but drilling obligations have been sidestepped as much as possible. Many 10-year leases have been obtained in all parts of the state, but 5-year leases are also popular. On many leases, drilling operations must start in 12 months, but usually the cash consideration is small with this type of lease. Lease prices in the hit-or-miss districts run from a few cents per acre rental to a dollar per acre, with negligible cash consideration.

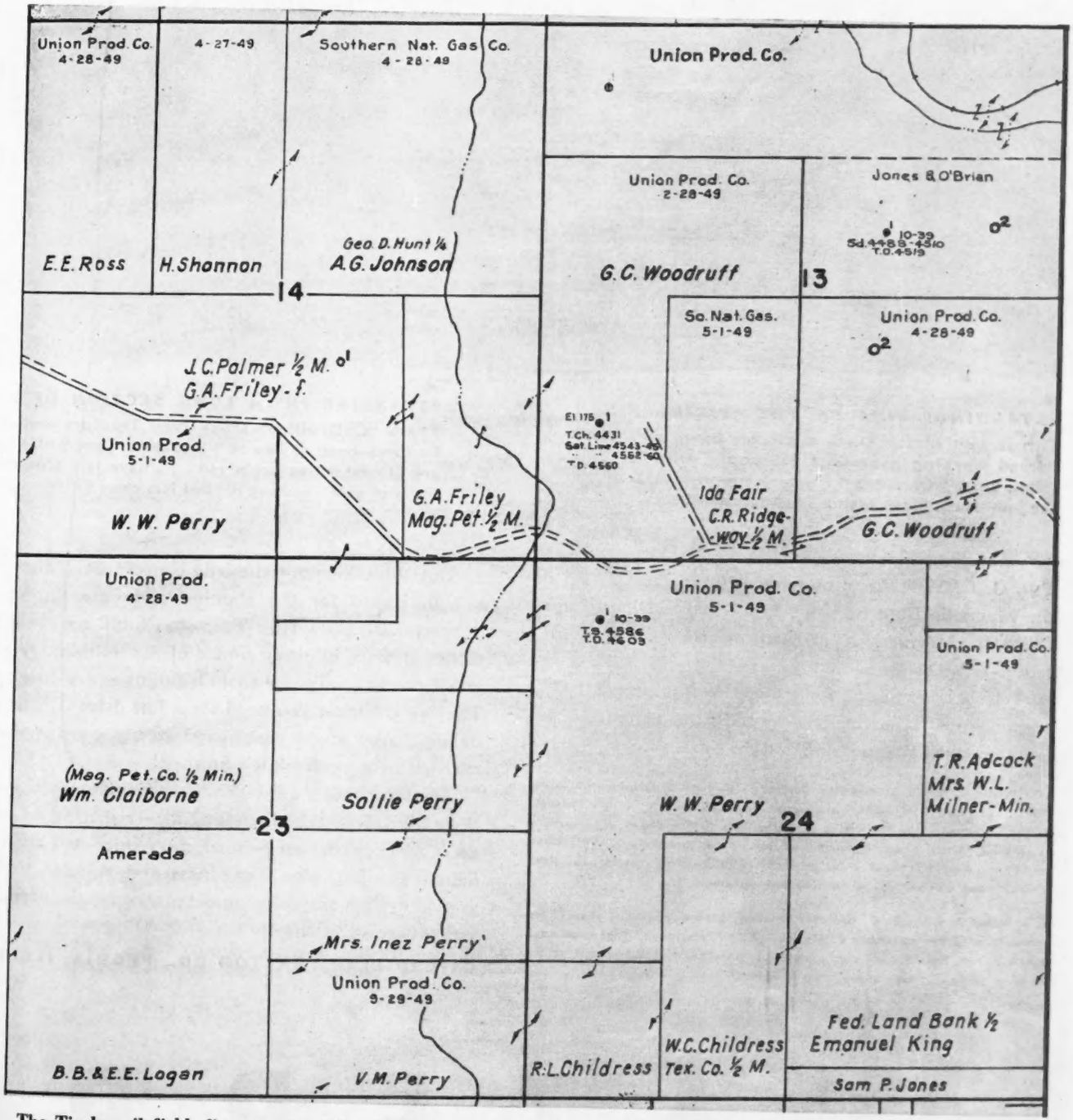
Companies holding large blocks in Mississippi include Gulf Oil Corporation, Shell Oil Company, Sun Oil Company, Humble Oil & Refining Company, California Company, Union Producing Company, Sinclair Prairie Oil Company, Phillips Petroleum Company, Southern Natural Gas Company, Louisiana Crusader Oil Company, and others.

Some of these blocks cover as much as two townships.

Sinclair Prairie Oil Company has leased more than 350,000 acres in Hinds, Yazoo, Wilkinson, Warren, Claiborne, Simpson, Lauderdale, Scott, Lamar, Newton, Madison, Jasper, Jeff Davis and Covington counties. This operator has taken out a charter in Mississippi for operation as Exchange Oil Company.

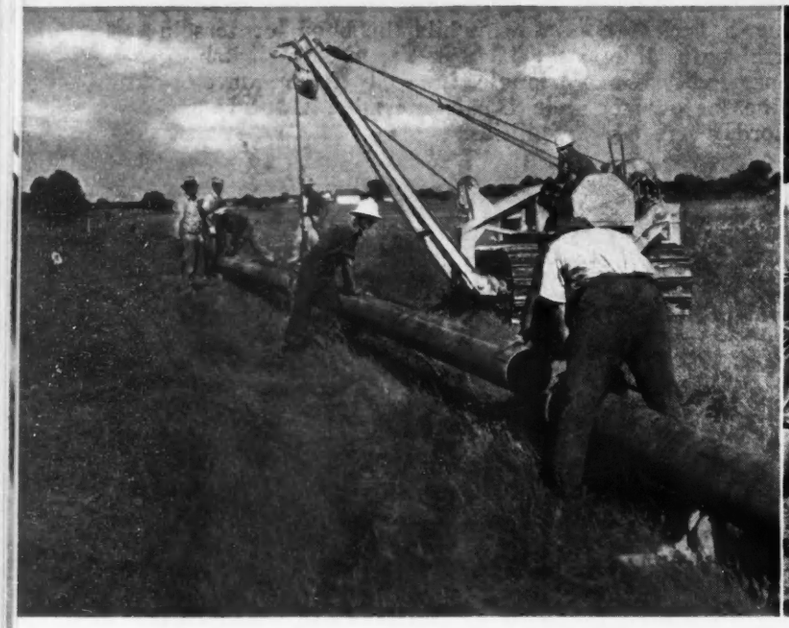
Phillips Petroleum Company obtained leases on about 800,000 acres of submerged state lands along the Gulf Coast in May, 1939, but early in November turned back to the state about 200,000 acres of such leases, following failure to locate structures or other indications of oil or gas. Phillips worked the 200,000 acres with reflection seismograph. The necessary control was obtained by running a series of east-west and north-south lines spaced two miles apart, with shot holes along these lines at quarter mile intervals. Records were obtained as deep as 20,000 feet, but reflections centered from a base of around 8000 feet. The area returned to the state lies in the vicinity of St. Louis Bay. The remainder of the state leases are being worked geophysically by Phillips and a report will be made on at least a part of the submerged lands in six months.

Meanwhile the boom centers in the Jackson-Yazoo City-Vicksburg triangle, but only future developments can determine its future possibilities.



The Tinsley oil field, first commercial producing area in Mississippi, has three wells producing from a quartz sand beneath the Selma Chalk of Upper Cretaceous age at a depth of 4560 feet. Union Producing Company's Stephens 1 test, half a mile north of the discovery well on the Woodruff farm, has indicated commercial producing possibilities in the Eutaw-Tuscaloosa contact at 4666 feet.

THEY'VE *got what you*



"STABBING" PIPE ON THE "FIRING LINE"
This is part of the O. C. Whitaker Company's West Spread working near East St. Louis, Illinois. The "Caterpillar" track-type Tractor—one of seventeen on the job—is equipped with a Trackson side-boom.

"STABBING IN" A LONG SECTION OF PIPE
These "Caterpillar" track-type Tractors are using Cardwell booms. Two of Whitaker's "Caterpillar" fleet are almost three years old . . . have laid almost 400 miles of pipe . . . have needed less than $35 for repairs!

THE O. C. Whitaker Company is laying its section of the Magnolia Line from St. Louis, Missouri, to Lima, Ohio—*and laying it entirely with "Caterpillar" track-type Tractors!*

Whitaker's reasons for using this equipment 100% are made more than evident by the statements from the two men chiefly responsible for the job!

LOY WILSON, the O. C. Whitaker Company's General Superintendent, says: "We have found 'Caterpillar' equipment most suitable for various reasons. In the first place, the facility of servicing, due to the dealer organization, is superior to that of any equipment we have used. Secondly, operation has proven to be more efficient — due primarily to quick-acting steering, excellent visibility and efficient power for mounted equipment."

L. B. McINTOSH, the O. C. Whitaker Company's Head Mechanic, says: "My job is to keep our machinery on the job. With 'Caterpillar,' that is an easy task . . . we find that we can depend on 'Caterpillar' track-type Tractors to keep going 24 hours a day, rain or shine."

But Whitaker isn't the only concern which has such a high regard for the stamina and dependability of "Caterpillar" track-type Tractors. You'll see these machines at work in *every phase* of the oil industry—and you'll nearly always see them handling *every* tough job! They've got what you need for a line drive . . . *or any other drive:* sound design and sturdy construction to stay with the work till it's finished!

Pictured here are the Whitaker Company's East and West Spreads on the Magnolia Line—*running as much as 11,000 feet in an 8-hour day.* Only real ability to handle the job, plus ruggedness and stamina to keep you free from excessive maintenance-repairs, can give you progress like that!

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPIL

REG. U.S. PAT. OFF.

DIESEL ENGINES • TRACK-TYPE TRACTORS

need FOR A LINE DRIVE!

▲ ***MAKING A BEND***

The 10-inch Magnolia Pipe gives up to two boom-equipped "Caterpillar" track-type Tractors as they turn on the power to make a bend. This is also part of the West Spread at work.

CRADLING
(upper, right-hand photo)

The O. C. Whitaker Company's East Spread—working below Vandalia, Illinois. A boom-equipped "Caterpillar" track-type Tractor cradles the pipe for the cleaning and priming machine.

DOPING AND WRAPPING

A Trackson boom on a "Caterpillar" track-type Tractor cradles the Magnolia Pipe Line for the W.K.M. doping and wrapping machine. More East Spread activity. ▶

LOADING PIPE

One of the O. C. Whitaker Company's "Caterpillar" track-type Tractors, equipped with a LaPlant-Choate bulldozer, loads pipe for the East Spread to prevent noticeable distortion from expansion and contraction. ▶

L L A R

ROAD MACHINERY

First Mississippi Drilling Was Back in 1903

By WM. H. STRANG, Staff Writer

Two-thirds of 300 wildcat failures drilled in the state have been in past nine years.

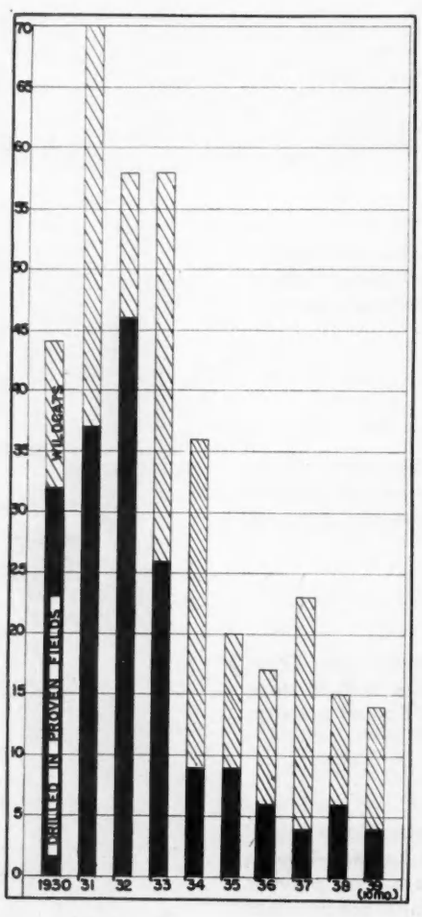
ALTHOUGH Mississippi did not enter the list of commercial oil producing states until September 5 this year, when the Tinsley dome in Yazoo County was proven productive, exploration for oil and gas within its boundaries began back in 1903, and two gas fields had been discovered previously.

The first test in the state was that of the Alabama-Mississippi Development Company, located near Enterprise, in Clark County. A second well was drilled by that company in 1905 near Barnett in the same county. There was no further drilling until 1911, when three attempts failed.

Amory Gas Field Found

A few unsuccessful wildcats were drilled each year from 1911 until 1926, when Amory Petroleum Company found gas in the Amory field, Monroe County, northeastern sector of the state. The discovery well was reported as having a potential of 4½ million cubic feet of gas from the Hartselle member of the Chester formation at 2470 feet. The gas horizon was close to a limestone formation in the base of the Chester, from which asphalts were being quarried. The Hartselle also is gas productive in adjoining northwestern Alabama.

This field, which was abandoned in 1937, is near the crest of the southern extension of the Cincinnati Arch where the major fold plunges southwest. The surface rocks were unconsolidated sands, shales and the Tuscaloosa crustaceous rocks that overlay the surface for miles.



Prior to 1930 only three wells in Mississipi had been drilled in proven fields and 109 wildcats had been drilled. The above chart shows the trend of wildcat drilling activity since 1930. The Tinsley Dome discovery, first commercial crude oil production in the state, occurred at a time when wildcatting was at a low level.

The Amory field, in which only four producers and three dry holes were drilled, supplied the town of Amory and several small surrounding towns with gas until 1937.

Jackson Gas Field Opened

There were no further discoveries in Mississippi until February, 1930, although sporadic wildcatting revealed a number of prospects.

The structure at Jackson, was first reported in 1930 by Eugene Hilgard, the state geologist, but no drilling was undertaken thereon until 1917. In 1920 and 1921 some drilling was done without successful results. There was no further development until 1929 when a dry hole was drilled southeast of Jackson. Another dry hole was drilled within the present productive area of North Jackson. In February, 1930, Jackson Oil and Gas Company brought in Mayes 1 as the discovery well. Since that time 149 producing gas wells and 55 dry holes have been drilled in the field. For a short time five wells produced small amounts of heavy refinable oil, salt water, and gas.

The Jackson anticline in Hinds and Rankin Counties is a Cretaceous uplift probably due in part to igneous activity, and is the same general type as the gas structures at Monroe and Richland, Louisiana.

Limestone and chalk formations which carry the gas are similar to the Monroe gas rock, but the typical Selma chalk formation found on the outcrop and in the wells to the north and east is not found on the Jackson uplift. The chalk at Jack-

IN LOUISIANA TOO—

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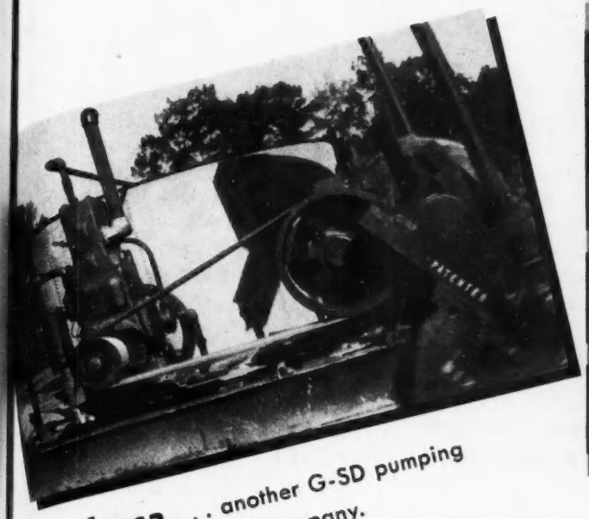
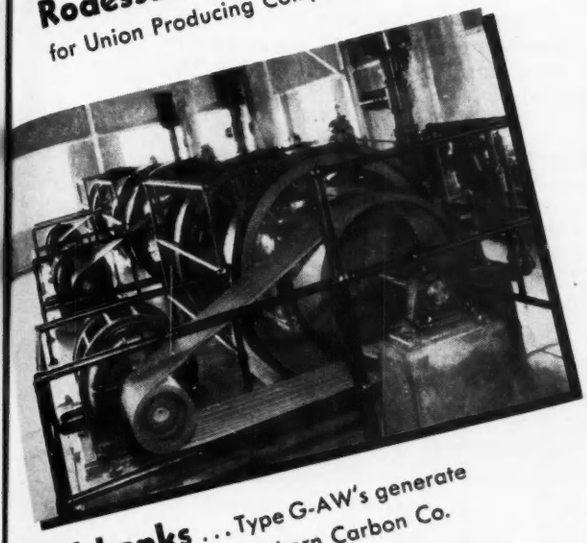


Rodessa . . . another G-SD pumping for Union Producing Company.



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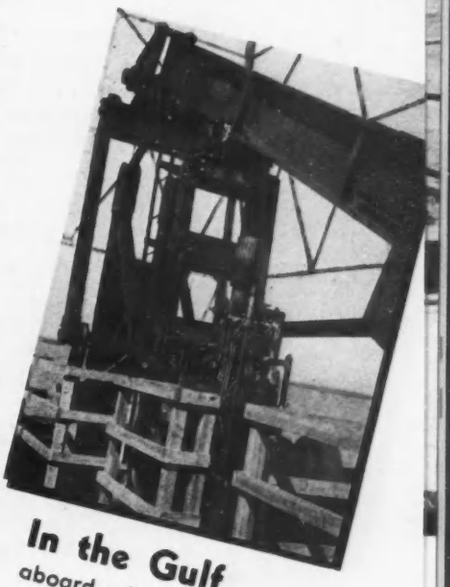

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son contains few fossils and there is still doubt as to whether its age is late Cretaceous or early Midway, or whether it represents a transition from Cretaceous to Midway.

Some fossils of Upper Cretaceous type were found in the underlying redbed series, so these redbeds must represent the Eutaw (Blossom) or Tuscaloosa formation and are of later age than the lower Cretaceous beds of Louisiana.

The Jackson field is located on the Gulf coastal plain on the east side of the Mississippi Embayment. About one-third of the gas bearing area falls within the city limits of Jackson.

Sedimentary formations shown on the Jackson structure range in age from Jackson, youngest member of the Eocene to Tuscaloosa, oldest member of the Cretaceous in the Mississippi region below the definite Tuscaloosa. The series of beds encountered are classified by some geologists as Lower Cretaceous in age but the U. S. G. S. considers their age as pre-Tertiary or possibly Carboniferous. Several wells have drilled carboniferous material considered to be of Cretaceous age.

In the gas area probably only the uppermost member of the Cretaceous is encountered by the drill. This is the chalk and sandy limestone member that has been correlated with the Selma chalk of Alabama and northeastern Mississippi.

Several different theories have been advanced to account for the accumulation of gas and oil under the Jackson structure. According to one, gas and oil migrated up and around the igneous rock of Paleozoic age until the movement was stopped by the impervious cap rock chalk. Another theory is predicated upon the destruction of the Midway black shale. The Creta-

Summary of Mississippi Drilling Activity

Data from "Petroleum Development and Technology" (A.I.M.E.), and The OIL WEEKLY

Three hundred unsuccessful wildcats preceded the discovery on Tinsley dome. From 1903, "the beginning," until November 1, 1939, only 15 of Mississippi's 82 counties had escaped the drill. The accompanying table shows the location by county and the approximate depth of every failure ever drilled in Mississippi. Seventy-five percent of Mississippi failures have bottomed between 2000 and 5000 feet. Perry and Covington counties have had 8500-foot tests.

Productive Wells Drilled, 1903 to November 1, 1939

Field and County	Gas	Oil	Date of Discovery	Production to November 1, 1939
Jackson, Hinds & Rankin	149	5	1930	Oil: 15,444 bbls. Gas: 97,500,000,000 c. f.
*S. Jackson, Rankin	...	1	1932	Negligible
Amory, Monroe	4	...	1926	Gas: 1,491,000,000 c. f.
Tinsley, Yazoo	...	4	1939	19,306 bbls.
Total	153	10	....	Gas: 98,991,000,000 c. f. Oil: 34,750

* Henslee et al Warner 1, completed at 2470 feet on southeastern flank of Jackson anticline tested 500 barrels daily of 13.6 degree gravity oil. The well was shut in upon completion.

Non-Productive Wells Drilled, 1903 to November 1, 1939

COUNTY	Total Depth in Thousands of Feet									
	½–1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	Total
Adams	..	..	1	..	1	..	..	..	..	2
Alcorn	..	..	1	..	..	..	..	..	..	1
Amite	..	..	..	..	..	1	..	..	..	1
Attala	..	1	..	1	..	..	..	..	..	2
Benton	..	..	..	..	..	..	..	..	..	...
Bolivar	..	..	..	1	..	..	1	..	..	2
Calhoun	..	1	..	1	..	..	..	..	..	2
Carroll	..	..	..	..	..	..	..	..	..	...
Chickasaw	..	2	1	..	..	..	..	..	..	3
Choctaw	..	..	..	..	..	..	..	..	..	...
Claiborne	..	3	..	1	..	..	..	..	..	4
Clarke	..	2	1	..	4	..	..	..	..	7
Clay	..	..	1	..	1	..	..	..	..	2
Coahoma	..	..	..	..	..	..	..	..	..	...
Copiah	..	2	2	..	..	..	..	..	..	4
Covington	1	1	..	3	2	..	1	..	1	9
De Soto	..	..	..	..	..	..	..	..	..	...
Forrest	..	..	..	1	..	..	..	..	..	1
Franklin	..	..	..	1	3	..	..	..	..	4
George	..	..	2	2	1	..	1	..	..	6
Greene	..	..	..	..	..	1	..	1	..	2
Grenada	..	..	1	..	2	..	..	..	..	3
Hancock	..	..	1	..	1	..	..	..	..	2
Harrison	..	..	1	1	1	..	..	..	..	3
Hinds	..	4	22	12	4	2	1	1	..	46
Holmes	..	..	1	..	..	..	..	..	..	1
Humphries	..	..	..	1	..	1	..	..	..	2
Issaquena	..	..	..	3	..	..	..	..	..	3
Itawamba	..	..	..	..	..	..	..	..	..	...
Jackson	1	1	4	3	1	1	..	..	..	11
Jasper	..	..	1	1	..	1	..	..	..	3
Jefferson	..	1	2	..	..	..	..	..	..	3
Jefferson Davis	..	..	..	1	..	..	..	..	..	1
Jones	..	..	..	..	4	..	..	..	..	4
Kemper	..	..	..	..	..	..	..	..	..	...
Lafayette	1	..	1	..	..	..	..	..	..	2
Lamar	..	2	1	4	..	2	1	..	..	10
Lauderdale	..	1	2	4	..	..	..	..	..	7
Lawrence	..	..	..	..	..	..	..	..	..	...
Leake	..	..	..	1	..	..	..	..	..	1
Lee	1	..	..	1	..	..	..	..	..	2
Leflore	..	..	..	..	..	..	..	..	..	...

COUNTY	Total Depth in Thousands of Feet									
	½–1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	Total
Lincoln	..	..	1	..	..	..	..	..	..	1
Lowndes	1	..	2	..	1	..	..	..	..	4
Madison	1	..	3	2	1	1	1	..	..	9
Marion	..	..	1	..	..	..	..	..	..	1
Marshall	..	..	2	1	..	..	..	..	..	3
Monroe	3	..	3	5	1	..	..	..	..	12
Montgomery	..	..	..	..	1	..	..	..	..	1
Neshoba	..	1	..	..	..	..	..	..	..	1
Newton	1	..	1	1	..	..	..	..	..	3
Noxubee	..	1	..	..	..	..	..	..	..	1
Oktibbeha	..	..	..	..	..	..	..	..	..	...
Panola	..	..	1	..	..	..	..	..	..	1
Pearl River	..	..	1	2	1	..	..	..	..	4
Perry	..	..	..	3	..	..	..	..	1	4
Pike	..	..	1	..	1	..	..	..	..	2
Pontotoc	..	..	..	..	1	..	..	..	..	1
Prentiss	..	..	..	..	..	..	..	..	..	...
Quitman	..	..	..	..	..	..	..	..	..	...
Rankin	1	..	13	7	4	3	1	..	..	29
Scott	1	..	..	..	..	1	..	..	..	2
Sharkey	..	..	..	2	..	..	..	..	..	2
Simpson	..	..	3	..	..	..	..	..	..	3
Smith	..	1	..	1	..	..	..	..	..	2
Stone	..	..	2	1	..	..	..	2	..	5
Sunflower	..	..	..	4	..	..	..	..	..	4
Tallahatchie	..	..	3	2	..	..	..	..	..	5
Tate	..	..	..	..	..	..	..	..	..	...
Tippah	..	..	..	..	..	..	..	..	..	...
Tishomingo	..	1	1	..	..	..	..	..	..	2
Tunica	..	..	..	..	..	..	..	..	..	...
Union	..	1	..	..	..	..	..	..	..	1
Walthall	..	..	..	..	..	..	..	..	..	...
Warren	1	2	5	5	1	1	..	..	..	15
Washington	..	..	2	2	..	..	..	..	..	4
Wayne	..	..	..	..	..	1	..	..	..	1
Webster	..	2	..	..	..	..	..	..	..	2
Wilkinson	..	..	..	2	1	6	..	..	..	9
Winston	..	..	1	1	..	..	..	..	..	2
Yalobusha	1	..	2	3	..	..	..	..	..	6
Yazoo	..	..	1	..	..	1	..	..	..	2
Total	14	30	95	87	38	23	7	4	2	300

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Peak Torque rating 20 spm inch lbs.	150,000	270,000	371,000	452,000	714,500
Stroke Length Maximum	24	30	32	36	40
Stroke Length Minimum	18	22	24	26	30
Connection Holes	20	20	20	20	24

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ceous has been suggested as the possible source of the gas and oil. While no known test has been made to determine the organic content of the chalk, it is among the most probable of the source beds.

The initial open-flow volume of wells in the fleld ranges from one to 54,000,000 cubic feet daily. To date more than 7500 acres have proven productive of gas.

Ultimate gas production in the field was estimated in 1934 at 128 billion cubic feet. To date approximately 97 billion cubic feet have been produced, and 15,444 barrels of the heavy oil. On January 1, 1939, there were 96 gas wells producing from the 2500 foot level. There were no producing oil wells at that date.

The major portion of the gas production in the Jackson field has been and is now being distributed by United Gas Pipe Line Company through lines to Mobile and Pensacola, a line south to Magnolia, and lines to the Mississippi Gulf Coast and Bogalusa, Louisiana. The Public Service Corporation of Mississippi operates a line to Hattiesburg, Miss., and serves intervening towns. Gas is distributed in the city of Jackson and vicinity by Mississippi Power and Light Company.

The origin of the Jackson structure has been the subject of much geological controversy. R. E. Grim in a bulletin of the Mississippi Geological Survey (1928) titled "Recent Oil and Gas Prospecting in Mississippi," in a brief study of the subsurface geology suggests that the Jackson structure may be a buried hill caused by crustal movements.

Donald J. Munroe in his monograph on the Jackson gas field published in the A. A. P. G. volume "Geology and Natural Gas" advances the opinion that both igneous activity and burial may be responsible for the structure for the following reasons:

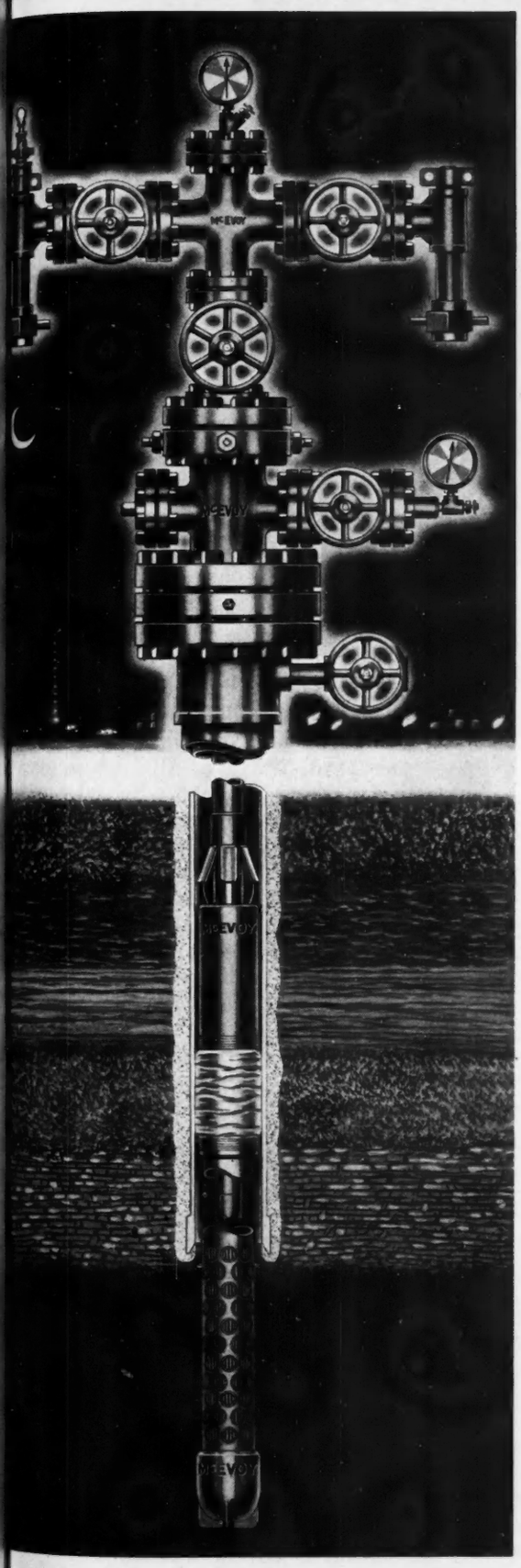
In late Cretaceous times, probably beginning with Tuscaloosa

Wildcat Wells Drilled in Mississippi Since 1934

Data from "Petroleum Development and Technology" (A.I.M.E.), and records of The OIL WEEKLY

COUNTY	COMPANY	Location, Sec.	Total Depth	Surface Formation	Deepest Formation Tested	REMARKS
1935:						
Forrest	Gulf Refining Company	11- 1n-13w	3007	Pascagoula	Claiborne	Dry hole.
Franklin	F. E. Courson et al	31- 6n- 2e	4024	Hattiesburg	Claiborne	Dry hole.
George	Gulf Refining Company	10- 2s- 9w	3450	Pascagoula	Claiborne	Dry hole. (May have reached Wilcox).
George	United Gas P. S. Company	6- 1s- 5w	6928	Pascagoula	Eutaw	Dry hole.
Grenada	W. L. Stewart et al	19-22n- 5e	4600	Wilcox	Pennsylvanian	Dry hole.
Harrison	Gulf Refining Company	22- 6s-13w	4156	Pascagoula	Claiborne	Dry hole.
Issaquena	Pelican Oil & Gas Company	11-12n- 8w	3227	Yegua	Trinity	Dry hole.
Jones	Snow-Black Petroleum Company	30- 7n-12w	4300	Hattiesburg	Wilcox	Dry hole.
Simpson	Berry Corporation	33- 2n- 4e	2600	Catahoula	Claiborne	Dry; show oil.
Stone	Gulf Refining Company	36- 3s-11w	7443	Pascagoula	Eutaw	Dry hole.
Warren	Harry W. Elliott et al	14-14n- 1e	3252	Vicksburg	Wilcox	Dry; show gas.
1936:						
Jones	Snow-Black Petroleum Company	31- 7n-12w	4080	Hattiesburg	Wilcox	Dry hole.
Lamar	Snow-Black Petroleum Company	3- 4n-15w	4062	Hattiesburg	Wilcox	Dry hole.
Lafayette	W. L. Stewart et al	9-10s- 1w	2465	Wilcox	Pennsylvanian	Dry hole.
Perry	Fred Courson et al	26- 1n- 9w	3026	Hattiesburg	Wilcox	Dry hole.
Smith	W. J. Lewis Drilling Company	15- 4n- 2e	1965	Vicksburg	Wilcox	Dry hole.
Warren	Harry W. Elliott et al	14-14n- 1e	1690	Recent	Sparta	Dry hole.
Warren	Harry W. Elliott et al	14-14n- 1e	3350	Recent	Wilcox	Dry; show gas.
Washington	Mid-Continent Development Company	1-14n- 8w	3455	Recent	Cretaceous	Dry hole.
Wilkinson	Charles Green et al	8- 3n- 1e	5033	Miocene	Claiborne	Dry hole; show oil in Cockfield.
Wilkinson	Kirby Petroleum Company	22- 1n- 2w	5509	Miocene	Claiborne	Dry; show oil in Miocene.
Wilkinson	T. S. Stoneman	38- 2n- 3w	5026	Miocene	Claiborne	Dry hole.
1937:						
Amite	J. P. Wemple, Trustee	29- 4n- 2e	5224	Miocene	Wilcox	Dry hole.
Bolivar	Phillips Petroleum Company	2-24n- 7w	6009	Recent	Paleozoic	Dry hole.
Franklin	F. E. Courson et al	18- 5n- 3e	5001	Miocene	Wilcox	Dry; show gas.
George	Cleve Love et al	9- 1s- 8w	4692	Miocene	Midway	Dry hole.
Hancock	American Sulphur Company	17- 9s-14w	2502	Coastal Terrace	Miocene	Dry hole.
Hinds	R. R. Chichester et al	12- 5n- 4w	3012	Vicksburg	Wilcox	Dry hole.
Hinds	Southern Natural Gas Company	35- 6n- 4w	4336	Catahoula	Salt	Dry; show gas 2910; discovery of Mississippi's 2nd salt dome.
Lamar	Sun Oil Company	28- 4n-15w	4024	Miocene	Salt	Dry hole; discovery of Mississippi's 1st salt dome.
Lamar	Sun Oil Company	28- 4n-15w	2015	Miocene	Anhydrite	Dry hole.
Lamar	Sun Oil Company	28- 4n-15w	3034	Miocene	Anhydrite	Dry hole.
Lamar	Sun Oil Company	28- 4n-15w	6598	Miocene	Anhydrite	Dry hole; Cretaceous sands carried asphalt.
Lauderdale	R. E. Dalton et al	34- 7n-14w	1580	Wilcox	Selma chalk	Dry hole.
Madison	Sun Oil Company	1- 8n- 2w	5034	Jackson	Selma chalk	Dry hole.
Perry	F. E. Courson et al	2- 2n-10w	3027	Miocene	Claiborne	Dry hole.
Wilkinson	H. L. Carnahan et al	1- 2n- 2w	5016	Miocene	Claiborne	Dry hole.
Wilkinson	Charles Green et al	4- 3n- 1e	4048	Miocene	Claiborne	Dry hole; show oil 2378.
Wilkinson	A. B. Taylor et al	32- 4n- 2w	3815	Miocene	Claiborne	Dry hole.
Wilkinson	A. B. Taylor et al	34- 4n- 1w	5559	Miocene	Wilcox	Dry hole.
Yalobusha	Skuna Development Company	26-24n- 6e	906	Wilcox	Midway	Dry hole.
1938:						
Calhoun	Bill Young	9-22n- 9e	....	Wilcox	.....	Dry hole.
Clarke	J. L. Ryan	29- 2n-14e	....	Jackson	Vicksburg	Dry hole.
George	Ryan & Anderson	9- 1s- 8w	....	Pleistocene	Selma	Dry hole.
Hinds	Cleve Love et al	35- 6n- 4w	....	Jackson	Trinity(?)	Dry hole.
Hinds	G. Jeffreys and E. R. Owen	26- 7n- 4w	3448	Jackson	Wilcox	Dry hole.
Pontotoc	Melvin & Waldrop	17-11s- 1e	....	Wilcox	Ripley	Dry hole.
Wilkinson	Louisiana Crusader Oil Company	35- 4n- 1w	....	Catahoula	Cockfield	Dry hole.
Yalobusha	Charles W. Crader	24-18s- 6w	....	Wilcox	Midway	Dry hole.
1939:						
Yalobusha	Charles W. Crader	24-11s- 6w	3195	Wilcox	.....	Dry hole.
Madison	Union Producing Company	12- 8n- 1w	6265	Miocene	.....	Dry hole.
Hinds	Cleve Love et al	29- 6n- 1w	6484	Catahoula	.....	Dry hole.
Lowndes	Ryan & Anderson	3-19s- 18e	4010	Ripley	.....	Dry hole.
Calhoun	L. C. Lucas	9-22n- 9e	794	Wilcox	.....	Dry hole.
Clarke	Ryan, et al	29- 2n-14e	1502	Jackson	.....	Dry hole.
Claiborne	Claiborne County Development Company	11n- 2e	3272	Pleistocene	.....	Junked.
Hinds	G. Jeffreys	26- 7n- 4w	7220	Catahoula	.....	Dry hole.
Humphreys	Union Producing Company	15-14n- 4w	5652	Recent	.....	Dry hole.
Yazoo	Union Producing Company	13-10n- 3w	4560	Recent	Sand below Selma	Second Mississippi production to be marketed—well tested 184 barrels 33 gravity oil daily thru ¼ positive choke.

New up-to-the-minute...



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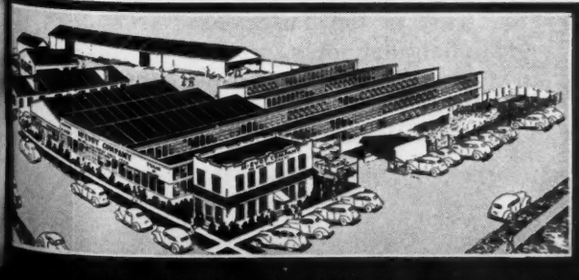

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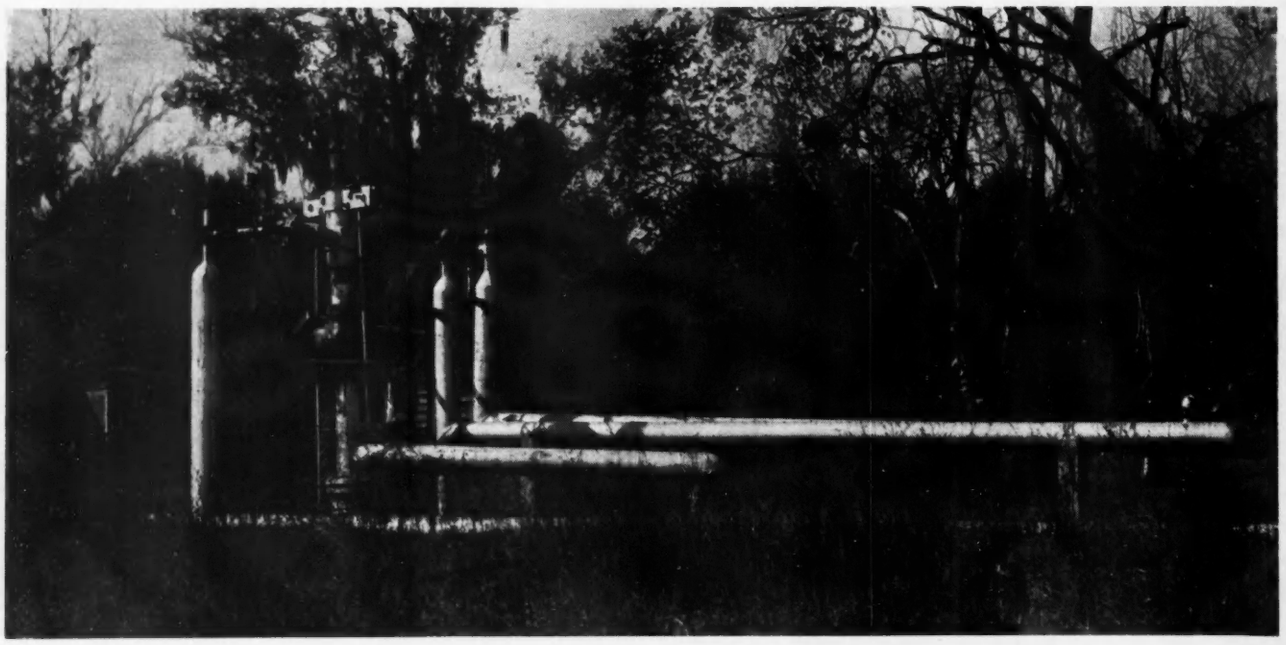

Producing gas wells in the old Jackson gas field look more imposing than they really are. The surface arrangement shown here is about standard for a large number of the wells. The field has been a good producer since 1930, but it is nearing depletion and gas is being brought to Jackson from Louisiana.

times, igneous and crustal disturbances occurred that can be traced in a northwesterly direction into Arkansas. Maximum movement now known in the Mississippi region is at Jackson. There is igneous material in the Tuscaloosa formation. There are pronounced unconformities at the top of the Tuscaloosa and at the top of the Eutaw.

These conditions indicate that at least before the chalk was laid down the Jackson area was an island. Unconformities at the top of the chalk between Midway and Wilcox, between Wilcox and Claiborne, and possibly one unconformity within the Claiborne, at the Claiborne - Jackson contact, indicate that throughout Eocene times the area was unstable.

The fairly uniform thickening of all formations flankward cannot be accounted for entirely by contractions around an old buried hill.

The Jackson structure is held by Munroe to be caused originally by crustal disturbances induced by igneous activity. The effect of contraction of sediments around the old central mass of the structure was a secondary causal force.

Exploration After 1930

From 1930 onward consistent development of the Jackson field and extensive wildcatting elsewhere featured Mississippi activity. The Gulf Refining Company Box 1 well, a mile south of Quitman in Clarke County, encountered the best show of oil to that date in the Eutaw about 20 feet below the Selma. A test indicated that the well would produce several barrels of heavy oil along with some salt water. It was abandoned at a depth of 4575 feet in the Tuscaloosa redbed. This well was the first to demonstrate that there were source beds capable of generating oil in the lower formations of the Upper Cretaceous. This location was also of importance as it was the first indication of potential success in drilling on the northwest extension of the Hatchetigbee anticline from Alabama into Mississippi.

First actual crude oil production was obtained in Mississippi in 1932 when Henslee et al's Warner 1 on the southeastern flank of the Jackson gas field was brought in at a depth of 2470 feet for 500 barrels of 13.6 gravity oil per day. The well was shut in upon completion because of lack of market outlets. Subsequent drilling in this area resulted only in dry holes, consequently the discovery was not of commercial importance.

Activity throughout 1933 and 1934 was spread over both the Gulf Coast area, and the "eastern Conroe trend" in southwest Mississippi. The "Conroe trend" drilling was concentrated in Wilkinson County, southwestern area of the state.

The year 1935 saw Mississippi wildcatting at a low ebb with only 11 wells drilled. In March, 1936, the State legislation appropriated $115,000 to be used by the State Mineral Lease Commission for drilling gas wells and a deep test upon state owned land in the Jackson field, thus establishing Mississippi as the first state to drill its own property for oil and gas.

The next important Mississippi development occurred in 1936, when the first salt dome was discovered. The discovery well was Sun Oil Company's Scanlan and Semmes 1 in Lamar County, southern portion of the state. It is generally referred to as the Midway dome. The existence of salt domes in Mississippi had been considered probable by geologists and geophysicists for some time, but this well was the first to actually drill into salt. The well encountered anhydrite at 1650 feet, which continued to 2205 feet where the well was abandoned in salt. Three other wells on this dome were abandoned in anhydrite. In one of these a significant discovery was the finding of 152 feet of asphalt-saturated sand in the Tuscaloosa; such asphalt definitely proving the presence of petroleum source beds of

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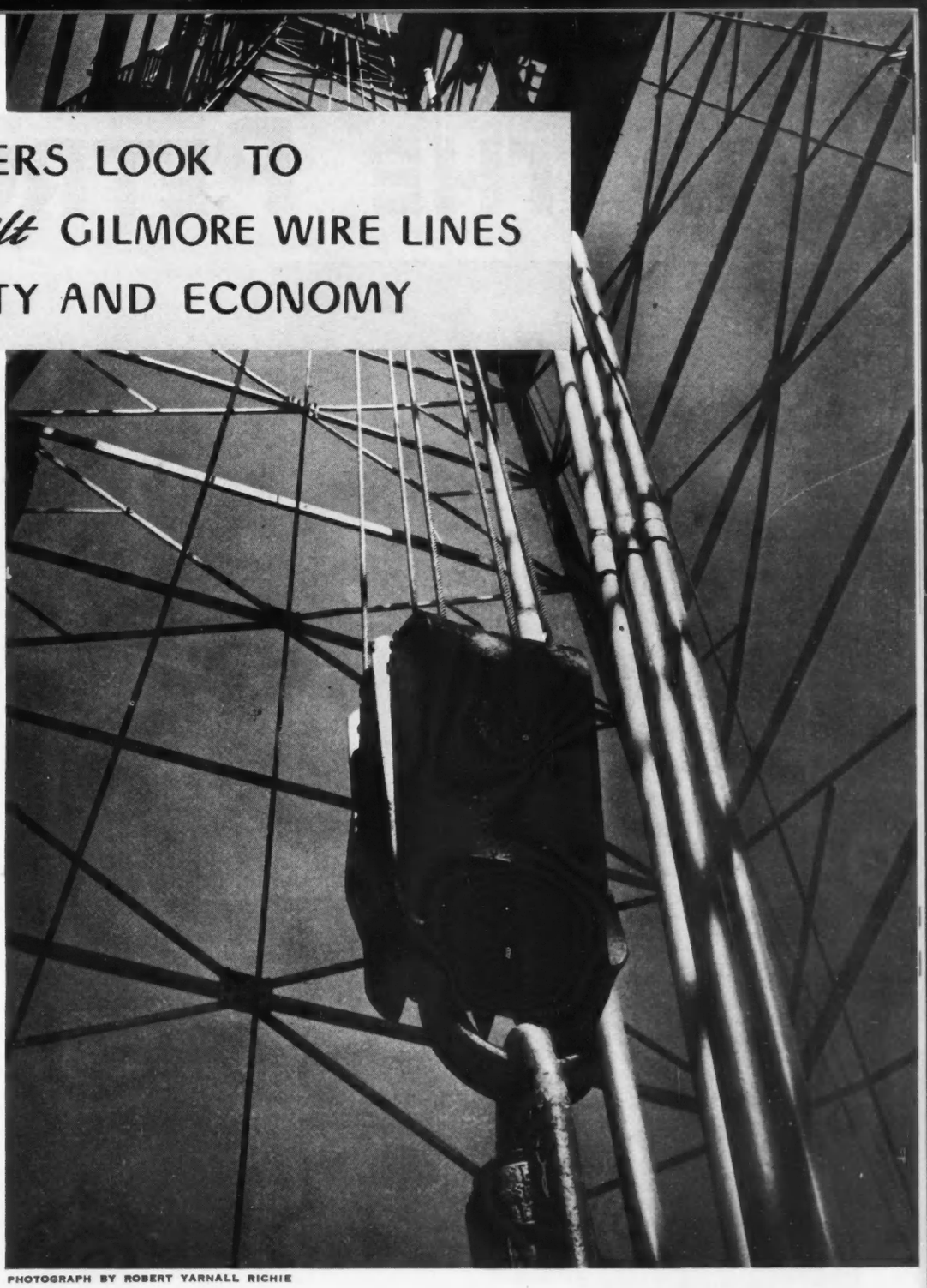

PHOTOGRAPH BY ROBERT YARNALL RICHIE

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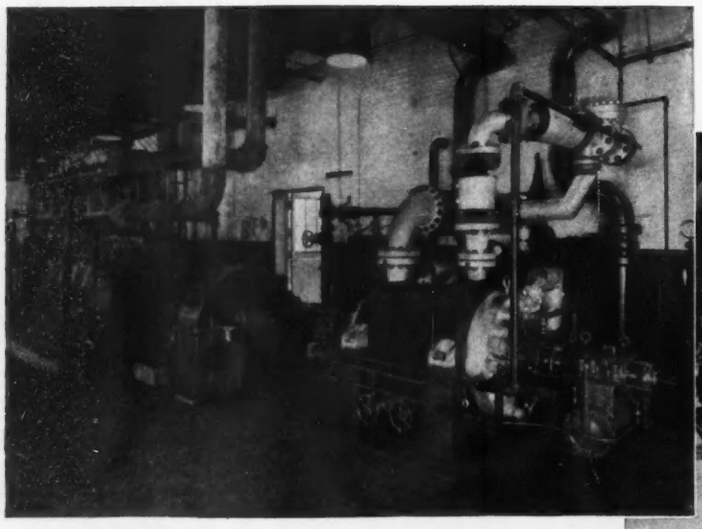
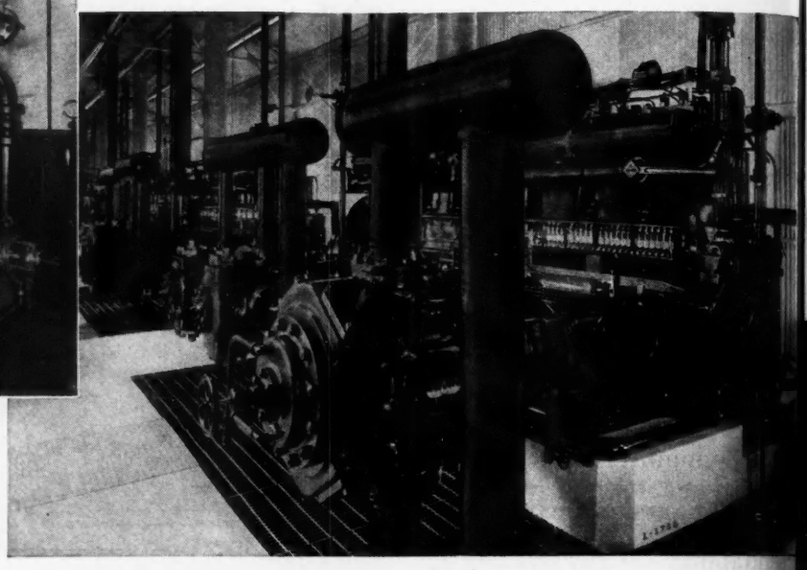
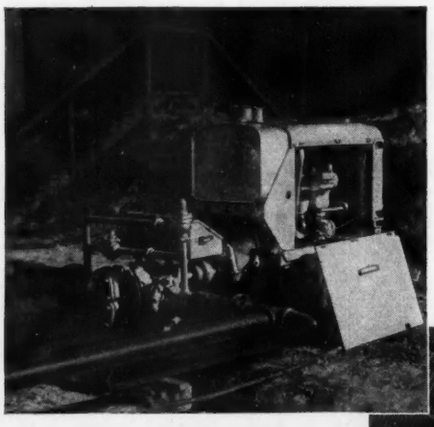


4" 7-stage Worthington Forged Steel Barrel Centrifugal Hot Charge Pump, driven by Worthington 375-hp. Gas Engine, through speed increasing gears

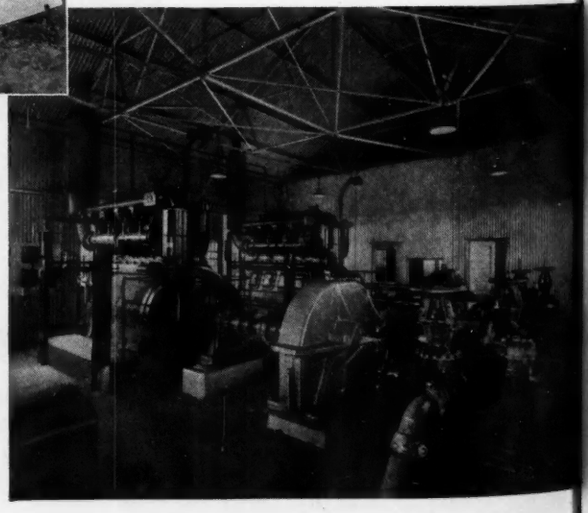


Part of a group of five Worthington Angle Gas Engine Gas Compressors in natural gas repressuring service

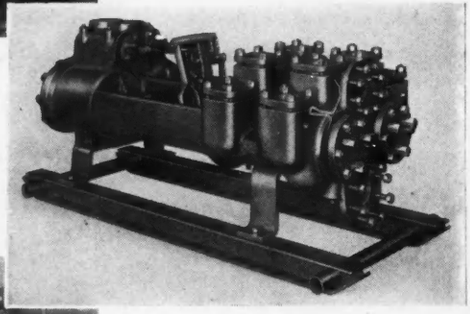
Below — Worthington Enclosed Crankcase Power Pump, driven by gas-gasoline engine with Worthington Multi-V-Drive, in oil gathering service



Left—Worthington Rotary Pump, gas-gasoline-engine-driven, in gathering service in the oil fields



Two Worthington 240-hp. Gas Engines connected through gears to Worthington Centrifugal Pipe Line Pumps

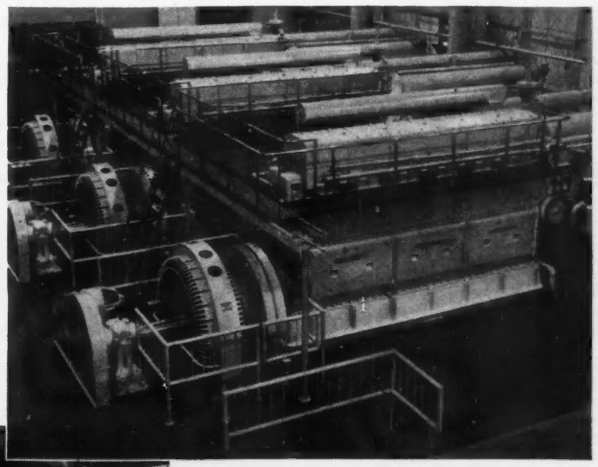


Right—Worthington High-Pressure Duplex Steam Pump for boiler feed service

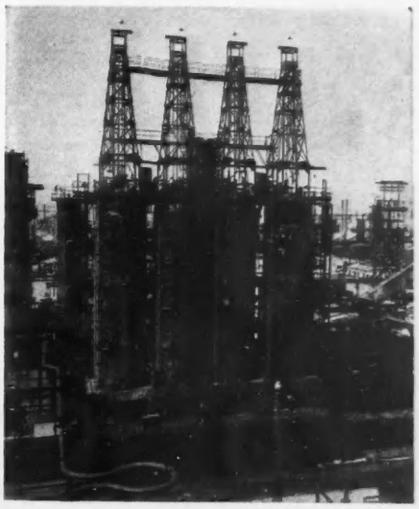
A group of four Worthington Type H Centrifugal Refinery Pumps

WOR

INDUSTRY...



Right—Three of four Worthington Convertible Gas-Diesel Generating Units, in the service of a leading petroleum producer



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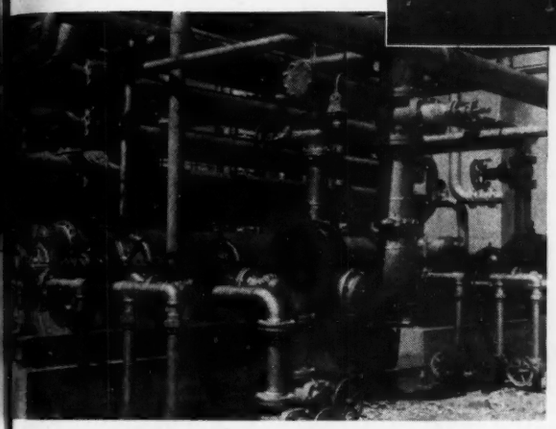
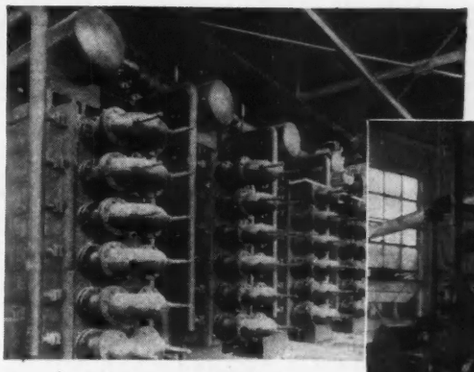


Two Worthington Centrifugal Pumping Units . . . three pumps in line . . . each driven by Moore Turbine operating on natural gas, for rich oil, lean oil and reflux service



Above—Worthington-Carbondale Chilling Machines, for ammonia direct-expansion operation, in a solvent dewaxing plant

Below—Worthington-Carbondale Horizontal 2-stage Ammonia Compressors, motor-driven, dewaxing oil in a refinery

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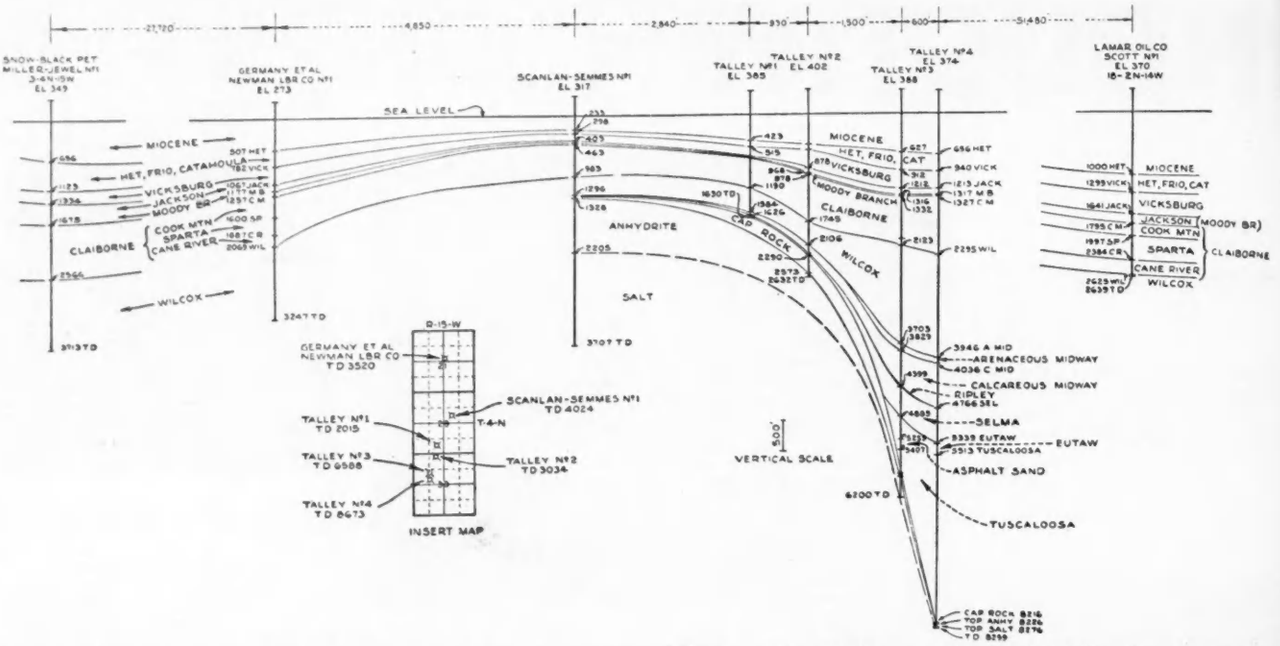

First salt dome discovered in Mississippi was this piercement type structure found by Sun Oil Company in 1936 in Lamar County. Although the dome, known as Midway, has been unproductive to date it established the presence of a salt dome basin in the state. Also significant was the coring of 152 feet of asphaltic sand in Sun's Talley 3 test to prove the former presence of petroleum source beds of considerable extent.

—From "Scanlan, or Midway, Dome, Lamar County, Mississippi," by D. J. Munroe, in American Association of Petroleum Geologists Bulletin, Vol. 22, No. 7.

some extent in this section of Mississippi.

The second salt dome found in Mississippi was the Edwards dome in Hinds County, in the western central portion of the state and roughly 75 miles northwest of the Midway dome. The discovery was by Southern Natural Gas Company's Angelo Williams 1 in 1937. Salt was encountered at 3026 feet. Several other wells have been drilled in this vicinity, but as yet commercial production has not been found.

The discovery of these salt domes increased interest in Mississippi possibilities considerably. Leasing and geophysical activity increased sharply. The latter operations have located a number of other structures believed to be salt domes.

The next, and most important strike in Mississippi's oil history, was the opening of the Tinsley field in Yazoo County. This was on September 5, 1939, when Union Producing Company's Woodruff 1, Section 13-10-3w, became the first commercial oil producer in the state. Production is coming from a quartz sand beneath the Selma Chalk of Upper Cretaceous age, at a depth of 4560 feet. Two additional producing wells have been completed in this horizon, and another has shown commercial possibilities in the Eutaw at 4877 feet. A drill stem test from 4860-77 feet showed 2850 feet of 36 gravity oil in 10 minutes with 3/8-inch chokes on top and bottom.

The Tinsley discovery immediately started Mississippi's most active leasing and wildcat drilling campaign, which at this moment is the most intensively prospected new frontier in the United States.

Since 1903 a total of 300 wildcat failures have been drilled in Mississippi, and only 15 of the state's 82 counties have escaped the drill. Seventy-five of Mississippi's failures have drilled to depths between 2000 and 5000 feet, but Perry and Covington counties have had 8500-foot tests.

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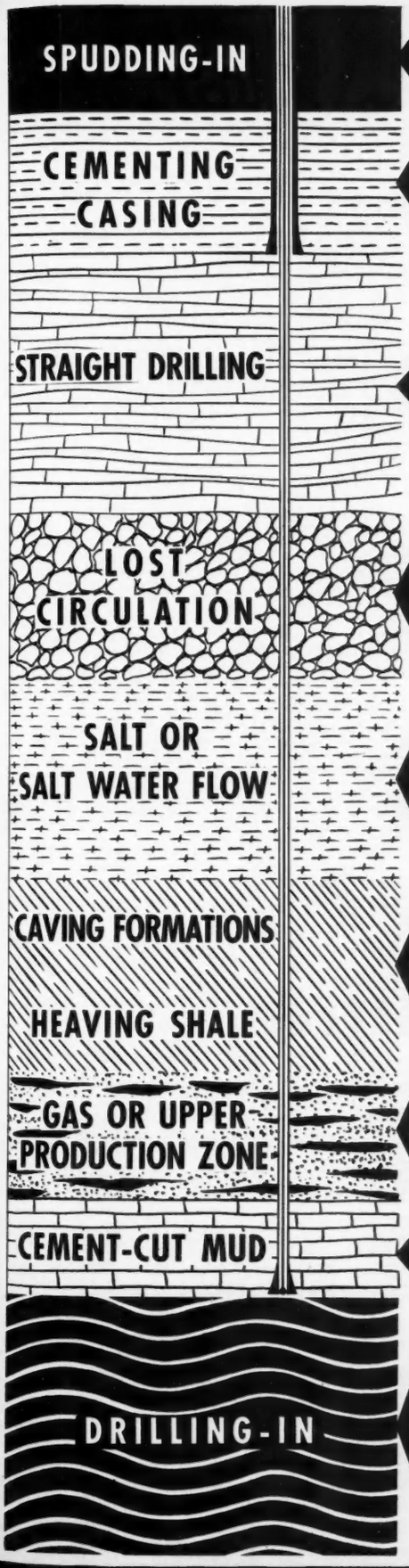

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AQUAGEL—Concentrated colloidal gel-forming clay. One ton makes as many as 100 to 120 barrels of excellent drilling fluid when mixed with fresh water.

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Lbs. AQUAGEL per Sack Cement if added dry with cement	2	2½	3	3½	4	4½	5	5½	6	6½

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AQUAGEL—Even though no definite formation troubles are encountered, a sufficient amount of AQUAGEL should be carried in the mud to keep the water loss low and the mud cake thin. High water loss induces sloughing and thick mud cake often causes stuck tools.

AQUAGEL FIBROTEX AQUAGEL-CEMENT

AQUAGEL—3 to 5% added to drilling mud, or 8 to 10% added to straight water often prevents or restores lost circulation in loose formations. If this fails try FIBROTEX.

FIBROTEX—Tough fibrous material for preventing or restoring lost circulation in highly porous formations. Treat 50-barrel batches of mud with from 12 to 14 pounds per barrel. One to three batches often stops serious losses of circulation. If this is unsuccessful, use AQUAGEL-CEMENT

AQUAGEL-CEMENT—To restore circulation in extremely fractured or cavernous formations use from 7 to 10 gals. water per sack of cement with from 2 to 6½ lbs. AQUAGEL per sack (See schedule under AQUAGEL-CEMENT in CEMENTING CASING). Slurries of apparent high viscosity pump easily but do not flow away due to their gelling characteristics.

BAROCO ZEOGEL BAROID COLOX

BAROCO—Salt resisting drilling clay. Maintains viscosity in the presence of salt. Makes about 40 barrels of mud per ton when mixed with salt water.

ZEOGEL—A concentrated colloidal clay which forms a gel with salt water. Yields upwards of 100 barrels of mud per ton in brine. Can be used where nothing but salt water is available.

BAROID or COLOX—Drilling mud weighting materials. Muds suitably weighted with BAROID or COLOX counterbalance pressure of salt water flows. Can be added to native mud or mixed straight with water and AQUAGEL.

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AQUAGEL—Enough should be added to the mud to produce superior wall-building qualities and keep the cake thin. This will reduce greatly the tendency of formations to cave.

BAROID or COLOX—Suitably weighted muds have demonstrated their efficiency in holding caving or heaving formations in place.

STABILITE—There are several formulas of STABILITE, both liquid and dry, the choice of which depends upon the condition of and contaminating materials in the mud at the time treatment is required. Reduces viscosity and gel-strength and improves walling qualities.

STABILITE BAROID COLOX AQUAGEL

STABILITE—Reduces danger of blowouts by freeing entrained gas, thereby keeping mud weight constant.

BAROID or COLOX—Highly weighted muds are frequently necessary to confine gas or other pressures.

AQUAGEL—Sufficient should be carried in all muds to keep the water loss low and the cake thin.

SMENTOX

SMENTOX—When drilling ahead after a cement job, the use of SMENTOX counteracts the effects of cement on mud. A small amount added to mud after a cement job will often eliminate the necessity of discarding the mud. Viscosity is reduced and wall-building qualities restored.

AQUAGEL BAROID COLOX STABILITE

AQUAGEL—In Low-Pressure Areas—Straight AQUAGEL-water mud (5⅓% to 7% by weight depending upon the mixing water used) is the ideal mud for drilling in. The low water loss keeps water from the oil sands and the thin cake is quickly and easily removed. Wells drilled in with this fluid swab on production and clean up quicker.

BAROID or COLOX—In High-Pressure Areas—A combination of BAROID or COLOX and AQUAGEL made up to suitable weight is the ideal drilling fluid. In locations where the natural mud provides adequate walling qualities BAROID or COLOX added to the mud in sufficient quantities will provide adequate weight to insure safety.

STABILITE—If gas cutting of the mud occurs, add suitable quantities of STABILITE in either liquid or powdered form.

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Oil men may soon learn their way about still another state capitol building—this one at Jackson, Mississippi. The state already has a conservation statute, personnel for directing such activities, and already has promulgated drilling rules for its first oil field, the Tinsley pool in Yazoo County.

Mississippi Has Effective Oil Conservation Statute

REGARDLESS of the eventual importance of Mississippi as an oil producing state, the industry apparently need not fear a reoccurrence of wide open flow that has characterized Illinois, since Mississippi has long been looking forward to the day when it would produce oil and already has a conservation statute.

One comprehensive oil and gas conservation statute has been enacted in the state (the Act of 1932), which was amended in 1934 and 1936, and is now administered through the office of the supervisor of oil and gas conservation and a three-member oil and gas board.

Rules have been promulgated already for the new Tinsley field in Yazoo County to prevent waste. This order, issued September 25, 1939, provides for 40-acre spacing. No exceptions are to be granted to this spacing rule until after bona-fide effort has been made to pool such tract or tracts with a contiguous tract or tracts or parts thereof. Following this an application must be made to the board for an exception, and the exception is not to be granted until after a public hearing. The order also provides rules for drilling and flowing operations.

The state oil and gas board is composed of the governor, the attorney general, and the state land commissioner. The state oil and gas supervisor is appointed by the governor for a 4-year term upon confirmation by the senate.

Powers of Board

The powers of the board are defined in Section 5 of the act as follows:

"(a) The board hereby created shall have authority to adopt and promulgate such regulations as may be reasonable and proper, and as it may deem necessary for the conservation of oil and gas pro-

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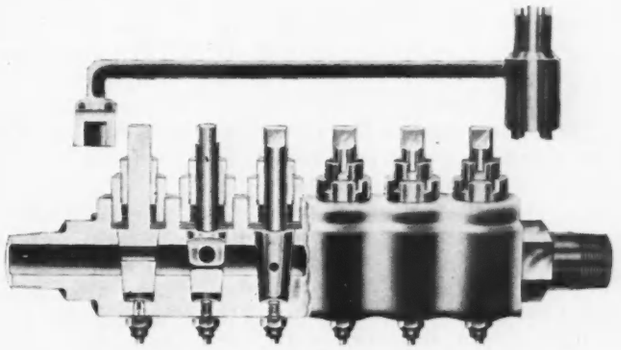

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duced in Mississippi, and to provide such rules and regulations for the drilling, development, sinking, deepening, abandonment and operation of oil and gas wells as may be necessary to prevent the waste of such products and to protect the common source of supply."

Sections 7 and 8 of the act define waste and prohibit such occurrence. In addition to its ordinary meaning, waste includes underground waste, surface waste and waste incident to the production of gas, crude oil and petroleum.

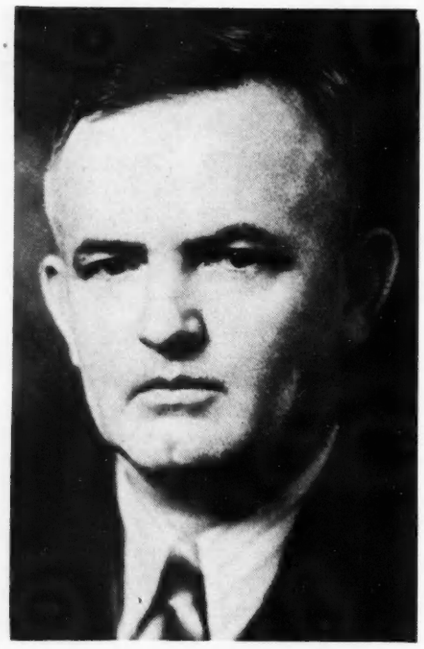
Provisions for Ratable Taking

Section 9 of the act was written to give the board the right to regulate production when necessary to prevent waste, and is couched in the following terms:

"Whenever the full production of any common source of supply of natural gas, crude oil or petroleum in the state can only be obtained under conditions constituting waste as herein defined, any person, firm, or corporation having the right to drill into and produce oil or gas in any such common source of supply may take therefrom only such proportion of all natural gas, oil or petroleum that may be produced therefrom without waste, as the production of well or wells of any such person, firm or corporation bears to the total production of such common source of supply. The state oil and gas board is authorized to so regulate the taking of natural gas, crude oil or petroleum from any or all common sources of supply within Mississippi as to prevent the inequitable or unfair taking from a common source of supply of natural gas, crude oil or petroleum for any firm, person or corporation, and to prevent unreasonable discrimination therein."

The act contains the customary provision with reference to permits being required for the drilling of wells, the protection of wells, the infiltrating of water, the prevention of waste generally by employing improved methods of drilling and production, the keeping of logs, the plugging of dry or abandoned wells, the testing of casings, the cementing of wells, metering of gas, making monthly reports by producers showing the amount of oil and gas taken from each well each month, and making yearly tests of the open flow capacity of wells.

The newly appointed state oil and gas supervisor took the position that the conservation act gave



H. M. Morse, above, state oil and gas supervisor for Mississippi, has been prominent in efforts to meet new conditions occasioned by the discovery of the state's first oil production. His office in the state capitol is being visited daily by an influx of new operators.

him the right to regulate withdrawals from all gas wells even in the absence of waste to insure fair treatment to producers and ratable production of all wells. This interpretation, however, was not enforced as the supervisor's order providing for gas proration in Jackson gas field was not placed in effect after the attorney general had pronounced it as of dubious legality.

Powers Broadened

In 1936 the legislature attempted to broaden provisions in Section 9, Chapter 117 in the Laws of 1932, by Chapter 305 of the Laws of Mississippi of 1936, the section was amended to read as follows:

"Sec. 9.(a) The term 'common source of supply' is used in this act to mean any oil or gas field or part thereof which comprises or includes any area which is underlaid, or which from geological or other scientific data or experiments or from drilling operations or other evidence appears to be underlaid, by a common pool or accumulation of oil or gas. The term 'waste' as used in this act shall, in addition to the definition in Section 8 of this act, include the production of natural gas in excess of transportation or market facilities or a reasonable market demand.

"(b) It shall be the duty of the board to prorate and regulate the gas well production from each common source of supply in the manner herein provided, for the protection of public and private interest, and to adjust the correlative rights and opportunities of each owner of gas in the common source of supply to produce, use or sell such gas. The board shall exercise said authority when the aggregate lawful production capacity of all gas wells located in the common source of supply is in excess of the reasonable market demand for gas and gas wells located therein. The limitation of production imposed by this section for the purpose of equitable proration among wells is in addition to the limitation imposed by Sections 38 and 39 of this act."

Suit Followed

Adoption and application of this amendment resulted in a suit in equity by Jackson Oil & Gas Company and Love Petroleum Company in the United States District Court on behalf of themselves and all persons similarly situated on the grounds that the amendment as in force resulted in the allocation to certain producers of an amount of allowable gas production less than their actual market demands. An interlocutory injunction was granted to plaintiff and in February, 1937, on application of the attorney general of Mississippi the injunction was made perpetual.

When the legislature met in 1938 considerable leasing and drilling activity was going on in Mississippi and it seemed probable that one or more oil fields might be brought in at any time. With this in mind, persons interested in conservation submitted a revised oil and gas conservation bill and incorporated therein what they regarded as the best revisions of the conservation acts of the other states. The measure was introduced in February, 1938, but was not passed. Salient features of the proposed measure lay mostly within an exhaustive definition of "waste." Through this definition the board was given power to check the dissipation of reservoir energy, the power to control locating, spacing, drilling, equipping or producing of any oil or gas well, when operators' practices tended to result in reducing the quantity of oil or gas ultimately recoverable from the common source of supply. Inefficient storing of oil and production in excess of transportation or marketing facilities also were to be forbidden.

May This 20th Annual Meeting of the A. P. I. be an Unqualified Success

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No other institution in modern industry has so much to its credit as the American Petroleum Institute. In twenty short years it has helped make order out of chaos, science out of experiment and unity out of an unparalleled multiformity of aims and interests.

May it be our privilege to continue to mesh our service with the tremendous power for good that is generated by these annual meetings of the A.P.I.

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Nebraska and Forest City Basin Produce First Oil

By FRANK B. TAYLOR, Staff Writer

A NEW petroleum province has been added to the ever-widening oil producing territory. The strike, a rank wildcat in extreme southeastern Nebraska, marked the first production for both the state and the Forest City Basin, which has been receiving an extensive leasing campaign during the past year. This made the second new state to produce oil in the past two months, Mississippi having received its first oil well on September 5 this year. (See page 42, this issue.) Today, 23 of the 48 states in the United States are producing commercial oil.

The Nebraska strike ignited a flare of interest that is a beacon in the north Mid-Continent region. Rated only as a shot-in-the-dark far from any producing trend, the location was practically ignored until oil began filling the hole on November 1. On its first 24-hour pumping test the well gauged 230 barrels, and 120 barrels the following.

Boice 1, the discovery, drilled by Pawnee Royalty Company with Ferndale Drilling Company as the contractor, is located in the CSL N½ NE NE 18-1n-1e, three and one half miles west of Falls City, Richardson County. Hunton lime was topped at 2276 feet and was drilled to 2282 feet. The well flowed half a barrel per hour through a reducing nipple, while tanks were being erected preparatory to installing a pump. Two-inch tubing was set 50 feet off bottom, and the well made its initial 230 barrels pumping 25 strokes per minute.

The state of Nebraska has a $15,000 cash bonus prize awaiting the first well that can produce 50 barrels daily for a 60-day period and it appears that Boice 1 has excellent chances of copping this award. No official witnesses have been sent to the well as yet, and to comply with the statute providing the offer a witness must be on duty. However, Governor R. L.

Since the discovery many company representatives have visited the well. These have included Barnsdall, Carter, Amerada, Trans-Western, Ohio, Skelly, Tide Water Associated, Phillips, Shell, Gulf, Pure, Texas, Stanolind and others.

Boice 1 has acted as a spur to leasing operations, and assures further drilling along the west edge of the Forest City Basin, where it flanks the Nemaha Ridge. It indicates the desirability of subsurface work, which has been the rule in only scattered instances, mostly east of the producer. Forty-seven dry holes have been drilled in the Basin.

The most prominent geologic feature of the area is the Nemaha Ridge which strikes in a general north and south direction to the west of the well. The ridge trends northeast through Kansas and is thought to nose out about 25 miles south of Omaha, Nebraska. Tests located on this feature, where it underlies Nemaha County, have found the top of solid granite between 500 and 600 feet below the surface. There has not been enough exploratory drilling to definitely determine its exact position or ex-

One tank has been completed, another is being erected, and still a third is to go up at Pawnee Royalty Company's Boice 1, located 3½ miles west of Falls City, first commercial producing well in Nebraska. The well also is the first test of present Forest City Basin exploration to find commercial production.

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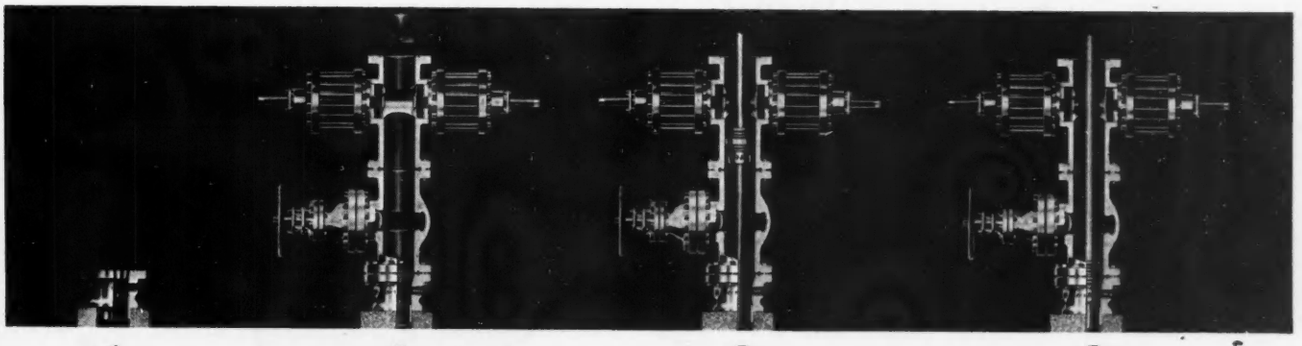
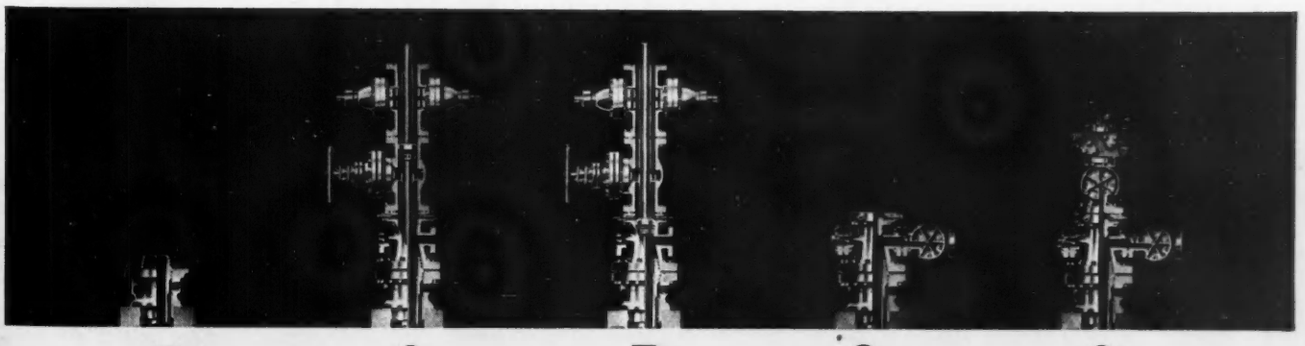


1 CASING HEAD ATTACHED WHILE CASING IS CEMENTED

2 DRILLING

3 RUNNING CASING

4 CASING LANDED AND CEMENTED



5 DRILLING CONTROL EQUIPMENT REMOVED WHILE CEMENT IS SETTING

6 DRILLING-IN AND RUNNING TUBING

7 TUBING LANDED

8 CONTROL EQUIPMENT REMOVED

9 MANIFOLD ATTACHED

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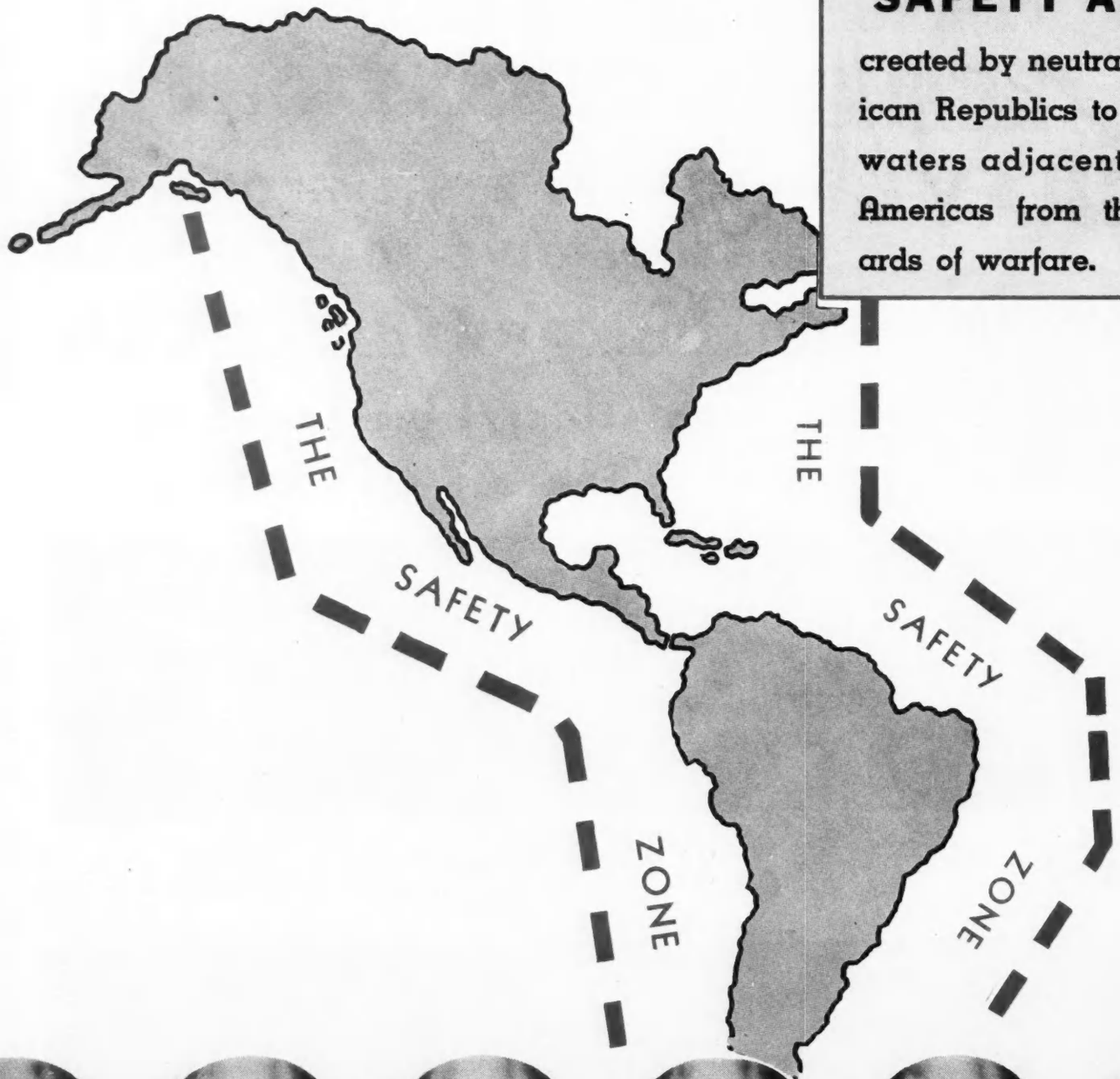

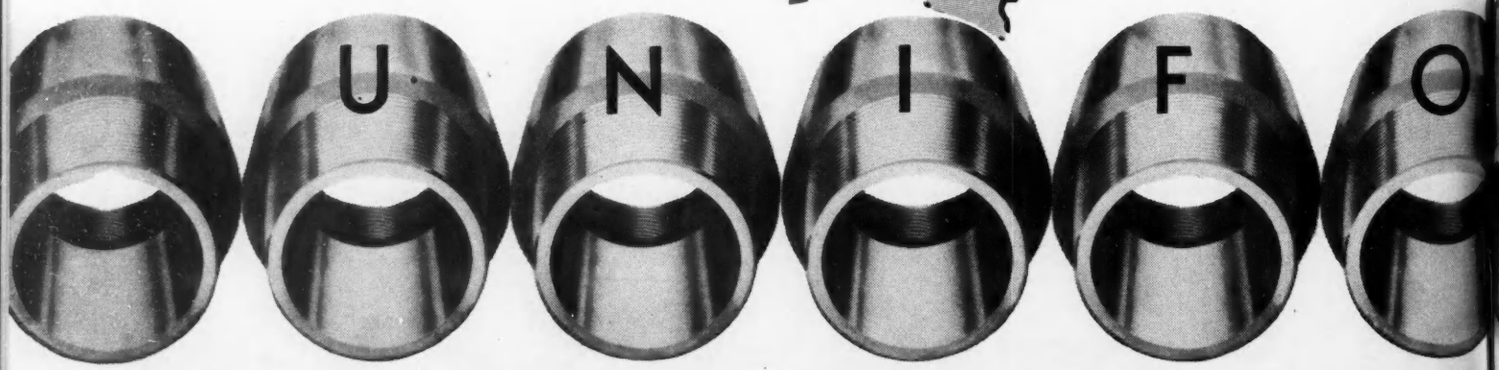

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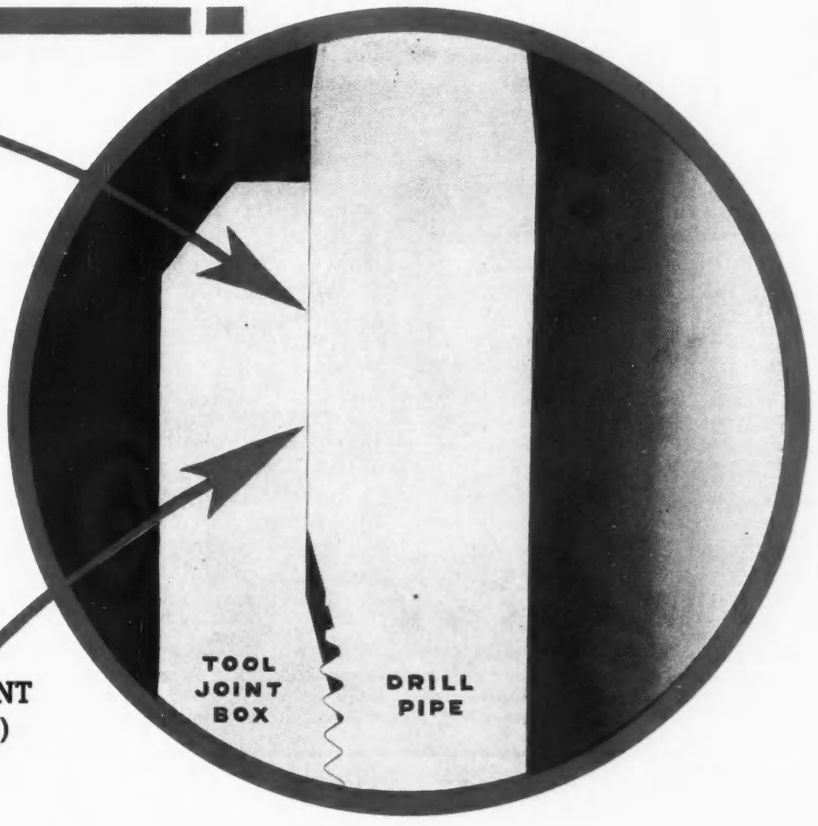

(THE DANGER POINT IS BRIDGED OVER)

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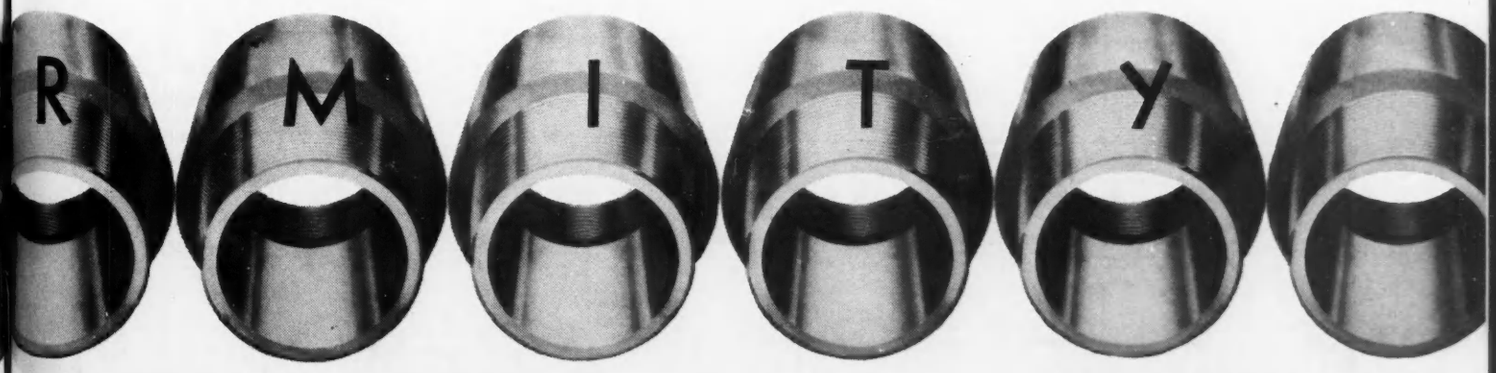


BIT COMPANY HOUSTON TEXAS

tent, although the trend of the ridge is fairly well established.

Dip of strata away from the ridge is abrupt. To the east of the well the sediments slope off gradually into Forest City Basin.

A number of surface structures are known throughout the area. Many of them have been drilled, but aside from a few shows of heavy, dead oil, there has been nothing to encourage the operators.

Study of the region, particularly that section flanking the ridge, indicate that surface structures might be entirely superficial, that they failed to reflect subsurface conditions. On this basis the past year has witnessed intensive seismograph work east of the ridge and well into the basin. The core drill supplemented this activity. Deep-seated anticlines have been located, and a north-south trend is thought to have been established. None of the more prominent features thus found have been drilled.

Pawnee Royalty Company surveyed its structure and made location with the aid of seismograph.

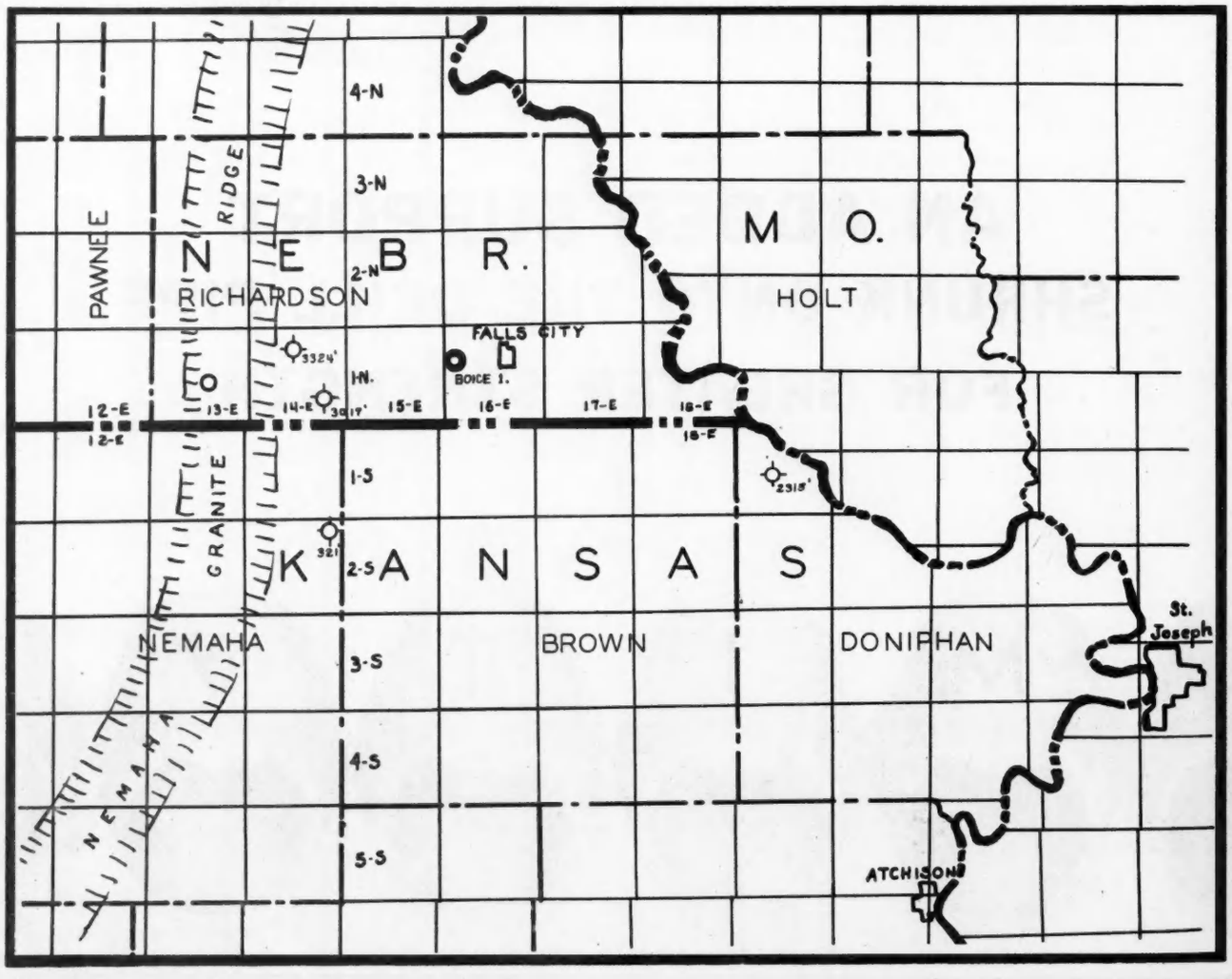
A difference of opinion exists as to the geological significance of the production although the test may correctly be assumed as being in Forest City Basin, it may well be more closely related in a geologic sense to Nemaha Ridge than to the basin proper. This would establish a new province of exploration, in no way detracting from continuation of prospects for basin production. The ridge, of basic granite, may be the controlling factor in establishment of any prospective trend, rather than the limitations of the basin. In the map accompanying this article, the position of the ridge is roughly indicated as centering the hatched area, and there seems little doubt but that the influence of the ridge covers the indicated zone as well as structural conditions some distance out from either flank. Tests closer to the granite, as shown, have encountered comparatively thick sedimentary beds.

Those who have had occasion to study possibilities in the area seem to believe Viola and Hunton limes would more logically carry commercial accumulation than a deeper formation as the Wilcox and Simpson. Boice 1 has proven the first point in this assumption.

Hunton samples from the well show the formation to be somewhat more porous than in locations south in Kansas and Oklahoma. Also, differing from normal Hunton production, it was not necessary to treat to gain production. Generally, the formation carries more gas than has been found in Boice 1.

Operators have a contemplated location northwest of their present well, and have a strong lease block of around 60,000 acres in a modified checkerboard. Skelly Oil Company, Carter Oil Company and others have acreage blocks and protection within a mile east of the well.

Nebraska's first producing well, Pawnee Royalty Company's Boice 1, is located near the intersection of Missouri, Kansas and Nebraska. Moreover, it is but a short distance from Iowa. Geologically, it is on the extreme western edge of the Forest City Basin, and just off the east flank of the Nemaha Ridge.



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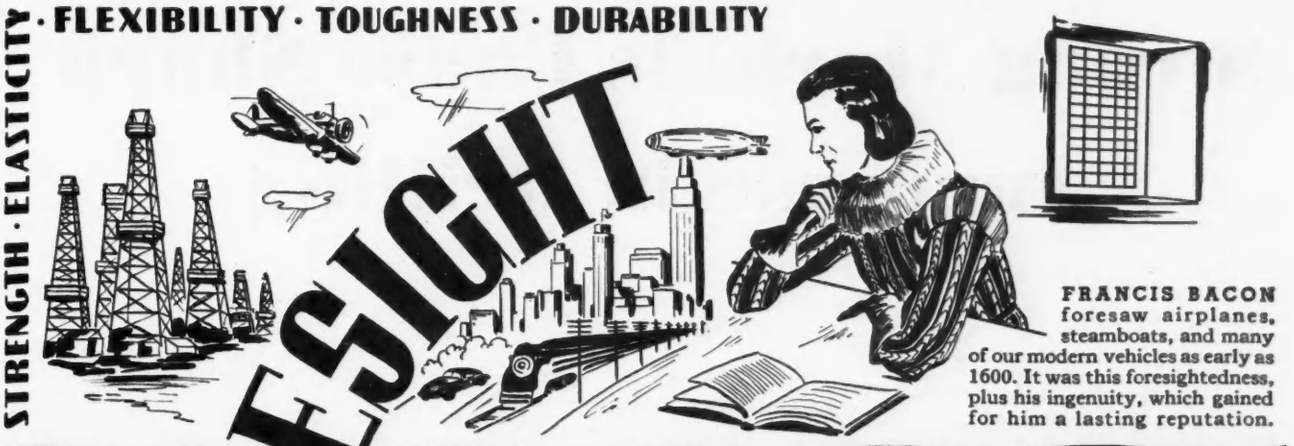

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Strong Markets Cause Sharp Increase in Drilling

By L. J. LOGAN, Associate Editor

DRILLING has increased sharply under the buoyant influences of the past two months, and exceptionally active field development appears assured for the rest of the year.

The past month proved to be the busiest October since the major depression with the exception of that in 1937. Similarly, November and December possibly will furnish more new wells than the closing two months of any other post-depression except 1937, although activity was brisk in the late months of both 1936 and 1938.

Oil Demand Good

The sharp pick-up in drilling in October occurred in response to the progressive improvement in the markets for crude oil and refined products since the middle of August. Following the Mid-Continent oil field shutdowns and the outbreak of war in Europe, both crude and refined oils have been in exceptionally strong demand; and there have been some increases of crude prices along with the substantial advances of product prices, with the result that producers have ventured forth confidently in the drilling of new wells.

Meanwhile, there are hopes of additional improvement in oil demand, particularly from foreign buyers, and a general advance of crude prices before the end of this year or early next year is regarded as quite possible, provided inventories of refined products are held within economic limits. This promising outlook naturally will encourage drilling in coming months.

Decline from 1938 Small

In the first 10 months of this year, well completions in the United States were 5.8 percent less numerous than in the corresponding period of last year, the brisk activity of October having narrowed the lag behind the 1938 record. (For the first 9 months, completions had been 7.3 percent short of those in 1938.)

Usually, drilling continues in November and December approximately at the same levels as in October, although adverse weather sometimes has a slight retarding effect.

This year, even if some slowing down should occur in the two closing months, completions for the 12 months would total around 26,700, or 3 percent less than the 27,528 of 1938.

October Results

Well completions in the United States averaged 81.1 daily in October, field work having expanded practically to the same proportions as in mid-summer, after having been retarded in August and September by the Mid-Continent oil field shutdowns for 15 days. The only month of 1939 that furnished more new wells than October was July, a month that nearly always is one of the most active of the year.

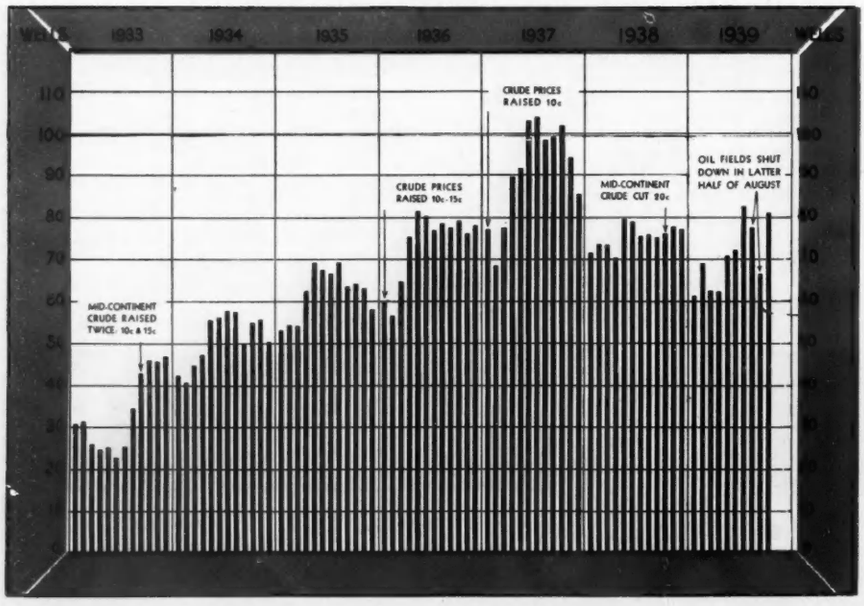
The October completions of 81.1 daily compared with only 66.4 a day in September, 77.7 daily in August, and 82.2 per day in July. They were 6.4 percent above the 76.2 daily of October last year.

Figures given herewith show the amount of drilling that has occurred in October in each of the years from 1933 through 1939.

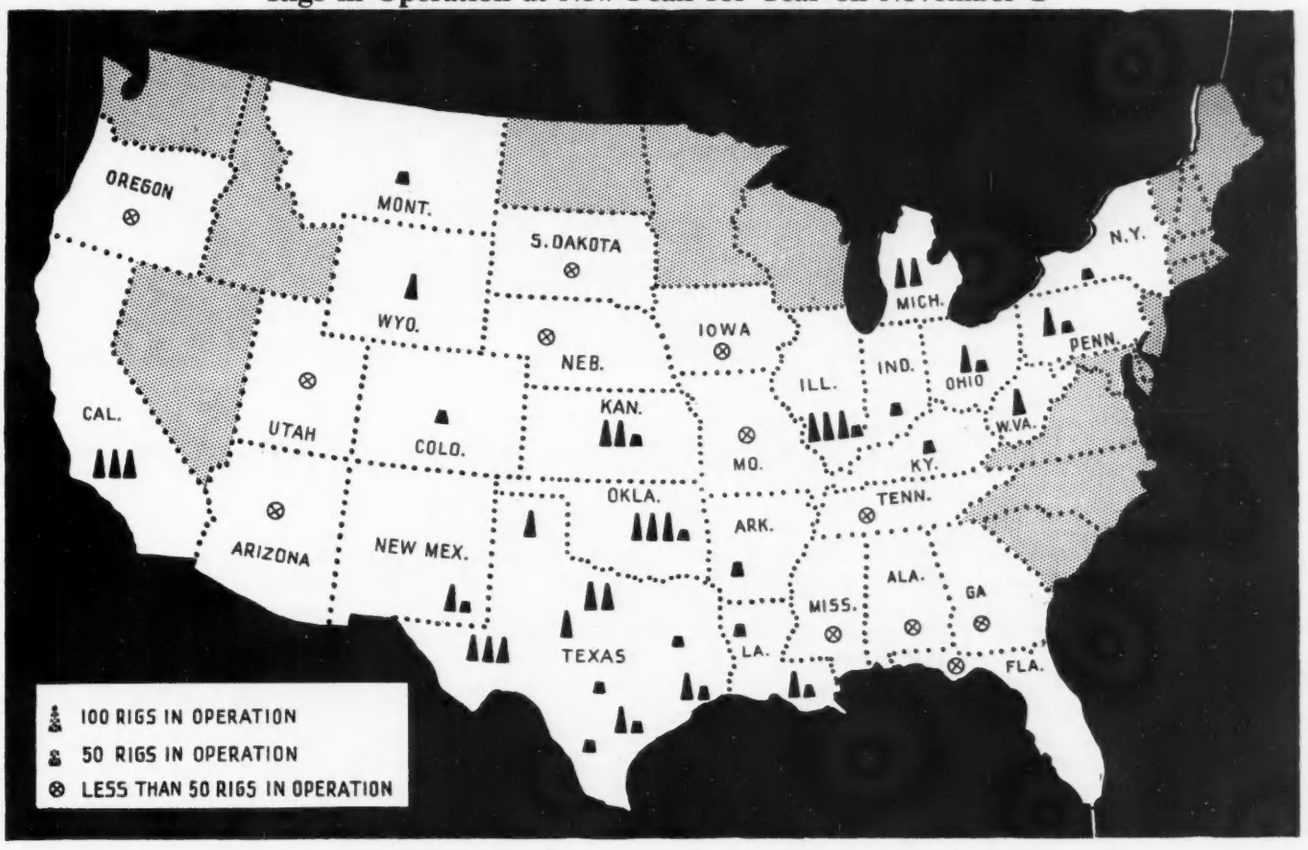
October of	Average Number of Wells Completed Daily
1933	46.0
1934	55.0
1935	64.2
1936	79.1
1937	102.0
1938	76.2
1939	81.1

So far, this year has been almost a duplicate of 1936 in volume of drilling, and in the closing two months, also, the 1936 results prob-

Average Number of Wells Completed Daily in U. S.
(By Months, January, 1933-October, 1939)



Rigs in Operation at New Peak for Year on November 1



ably will be closely approximated. Thus the completions of 1939 (estimated above as around 26,700 wells) likely will total close to the 26,935 of 1936.

For the first 10 months of the year, from 1933 through 1939, completions in the United States have been as indicated herewith.

First 10 Months of:	Number of Wells Completed
1933	9,569
1934	15,631
1935	18,872
1936	22,087
1937	27,423
1938	23,174
1939	21,855

Areas Showing Gains

Although well completions for the United States as a whole have been 5.8 percent fewer this year than last year, development has been more extensive in several states and districts.

Illinois remains the year's standout in drilling, having furnished more than twice as many new wells in 1939 as in 1938, as development of the state's new fields has handsomely rewarded operators. From January 1 to October 31 the state accounted for 3073 new wells, as compared with 1259 in the corresponding period last year.

The success of drilling in Illinois has stimulated activity in the adjoining state of Indiana, which furnished 214 completions in the first 10 months of this year, compared with 123 in the similar period last year, a 74 percent increase.

Although Michigan has furnished less than one half as many completions as Illinois in 1939, the former has been a contender for recognition as an exceptionally active state, in comparison with its own past record and also in comparison with some of the other leading producing states. The number of completions in Michigan in the first 10 months of 1939 was 1242, or 55.8 percent more than the 797 of the corresponding months of 1938. The state has ranked this year along with Kansas, Louisiana, and Pennsylvania, in volume of drilling and has furnished nearly as many new wells as Oklahoma. The relatively large amount of field work has resulted particularly from the success in finding new, shallow producing areas in the southwestern part of the state.

While the above mentioned states of the Middle West have shown the most noteworthy gains in drilling, increases have occurred also in the Rocky Mountain states.

In the Mid-Continent, several states now show more completions for 1939 than for 1938. Arkansas has furnished 199 new wells, compared with 184, an increase of 8.2 percent. New Mexico has had 536 completions, or 23.3 percent more than the 438 of the first 10 months of last year. Louisiana emerged during October into the group of states showing gains over last year, completions for 1939 having risen to 922, against 911 in the first 10 months last year, an increase of 1.2 percent. The net gain for the state resulted from brisk activity in the Gulf Coast region, where 652 completions exceeded the 473 of last year by 37.8 percent. This large increase more than compensated for the 39.2 percent decline in North Louisiana which cut completions to 270 from 438.

Although Texas as a whole has had 24.6 percent less drilling this year than last year, there have been gains of 33.6 percent in West Central Texas and 9.7 percent in the Corpus Christi area of Southwest Texas.

Figures on current drilling activity supplied by the staff men of this publication indicate that November will furnish a relatively large number of completions. Drilling rigs in operation in the United States on November 1 totaled 3905,

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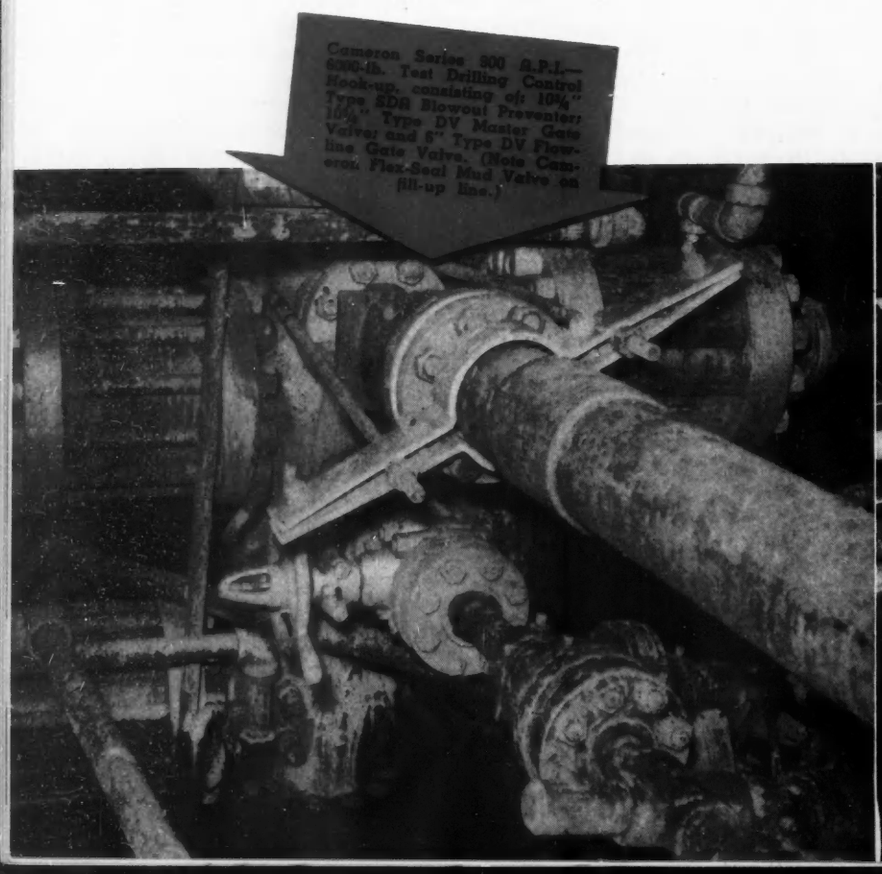
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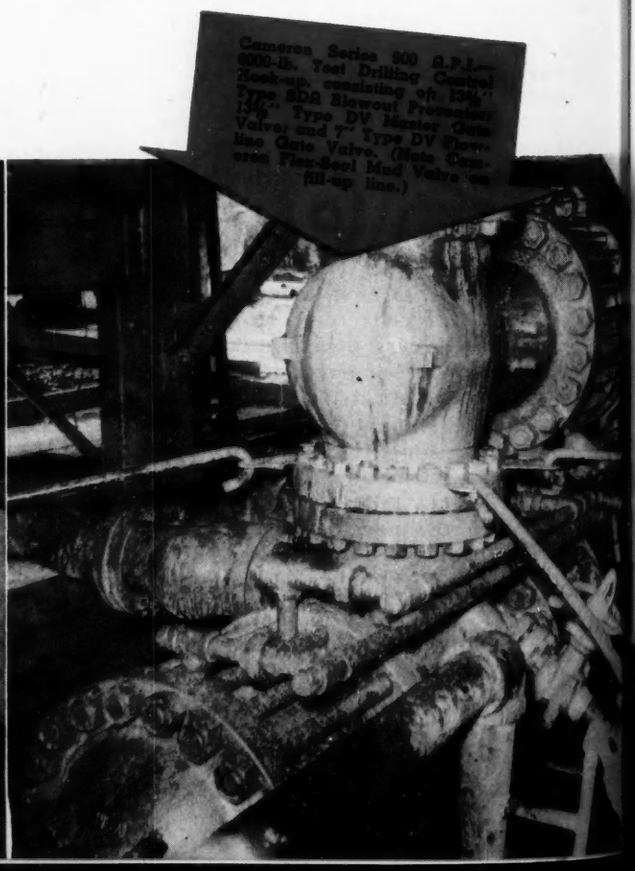
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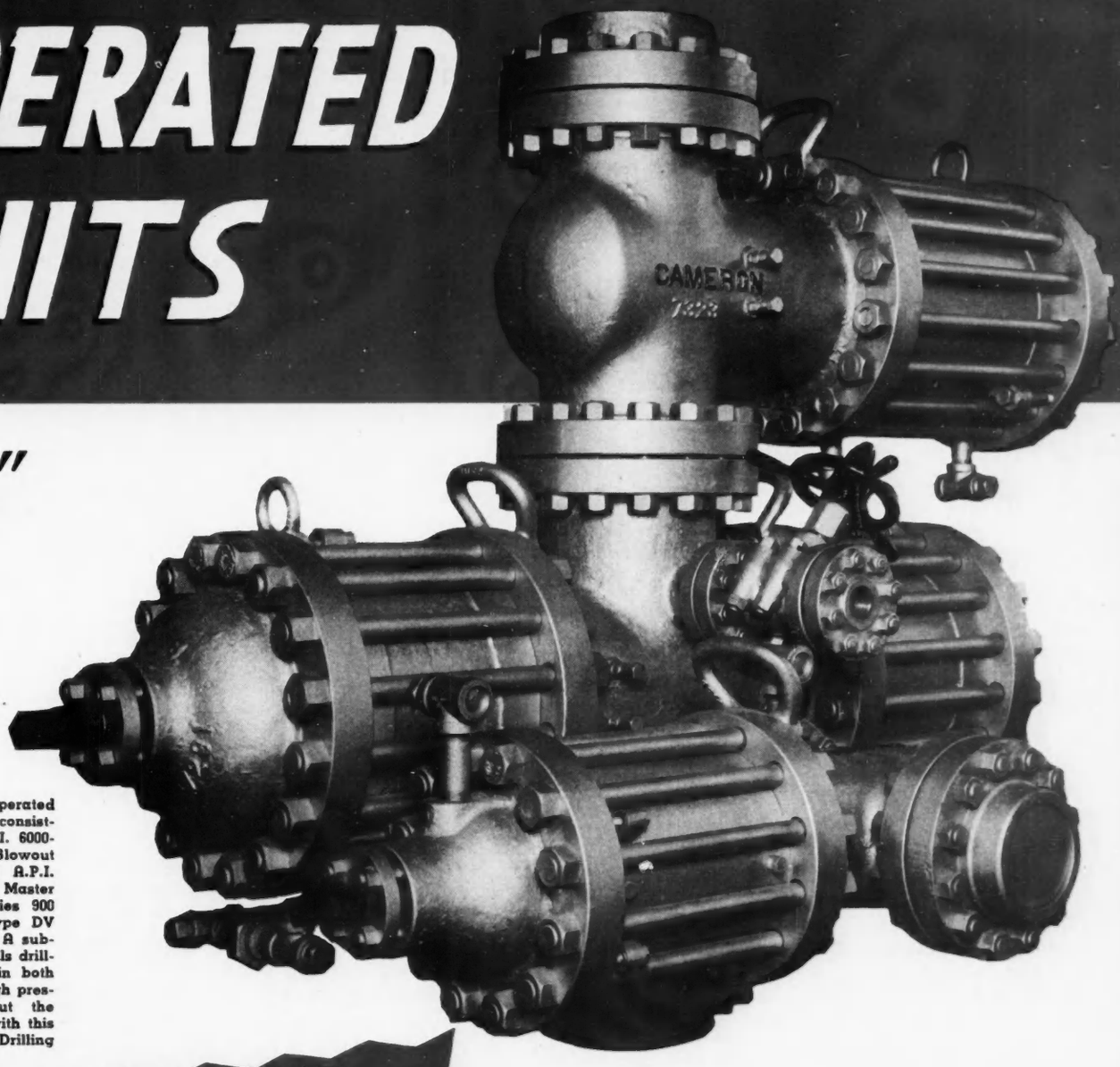

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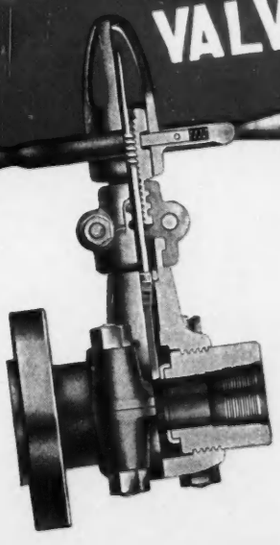

Cross-section view of a Cameron Flex-Seal Mud Valve, clearly illustrating its unique design.

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Many More Rigs in Field Now Than at This Time Last Year

STATE OR DISTRICT	TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shut-Down) Nov. 1, 1939	Oct. 1, 1939	Nov. 1, 1938	Percent Change from Year Ago	DETAILS OF NOVEMBER 1, 1939 DRILLING ACTIVITY Rigs in Operation: Drilling	Rigs Up	Shut-down	Prelim. Activity: Derricks	Locations	Total Operations
Arizona	8	8	5	+ 60.0	5	...	3	...	5	13
Arkansas	54	36	49	...	27	10	17	4	3	61
California	323	325	333	— 3.9	225	59	39	33	50	406
Colorado	31	27	48	— 35.4	13	3	15	...	...	31
Eastern States	943	862	927	+ 1.7	573	104	266	135	126	1,204
Illinois	375	355	338	+ 10.9	183	55	137	84	76	535
New Fields	244	233	268	— 8.9	123	41	80	67	54	365
Rest of Illinois	131	122	70	+ 87.2	60	14	57	17	22	170
Indiana	67	62	32	+109.0	47	7	13	11	12	90
Kentucky	71	73	86	— 17.5	34	7	30	11	7	89
New York	59	57	90	— 34.3	38	5	16	2	4	65
Ohio	127	121	141	— 9.9	74	14	39	5	6	138
Pennsylvania	158	124	128	+ 23.4	134	7	17	11	16	185
West Virginia	86	70	108	— 22.2	63	9	14	11	5	102
Iowa	1	1	...	...	1	...	...	...	...	1
Kansas	231	193	206	+ 12.1	172	31	28	19	13	263
Louisiana	202	192	232	+ 13.0	167	17	18	14	69	285
North Louisiana	71	59	110	— 35.4	44	13	14	5	7	83
South Louisiana	131	133	122	+ 7.4	123	4	4	9	62	202
Michigan	223	200	207	+ 7.7	148	29	46	...	31	254
Missouri	17	22	...	...	7	2	8	2	2	21
Montana	40	31	45	— 11.1	13	1	26	1	...	41
Nebraska	1	1	1	...	...	...	1	...	...	1
New Mexico	163	158	145	+ 11.0	127	8	28	3	21	187
Oklahoma	350	334	401	— 12.7	266	48	36	49	34	433
Oregon	1	1	...	...	1	...	...	...	...	1
South Dakota	1	...	...	...	...	...	1	...	1	2
Southeastern States	28	33	22	+ 21.4	12	9	7	6	4	38
Alabama	2	4	5	— 60.0	1	...	1	...	...	2
Florida	4	4	5	— 20.0	...	3	1	1	...	5
Georgia	1	1	...	...	...	...	1	...	...	1
Mississippi	15	15	12	+ 25.0	7	5	3	4	2	21
Tennessee	6	9	...	...	4	1	1	1	2	9
Texas	1,210	1,130	1,188	+ 1.8	947	95	167	74	333	1,615
East Texas Field	9	18	32	— 72.0	6	2	1	5	10	24
East Texas Border Counties	11	14	14	— 21.4	5	4	2	5	...	16
Rest of East Texas	44	43	45	— 2.2	27	6	11	4	4	52
North Texas	194	174	155	+ 25.1	142	11	41	7	70	271
South Texas	304	287	303	+ 0.3	239	24	41	24	63	391
Corpus Christi Area	166	161	148	+ 12.1	141	11	14	10	33	209
Laredo Area	71	66	85	— 16.5	51	7	13	7	18	96
San Antonio Area	67	60	70	— 4.3	47	6	14	7	12	86
Texas Gulf Coast	146	125	149	— 2.0	138	6	2	19	87	252
Texas Panhandle	109	94	95	+ 14.7	87	14	8	4	18	131
West Texas	313	295	320	— 2.2	264	20	29	5	71	389
West Central Texas	80	80	75	+ 6.7	40	8	32	1	9	90
Utah	1	2	2	+ 50.0	...	...	1	...	1	2
Wyoming	77	69	69	+ 11.6	29	7	41	...	2	77
Total United States	3,905	3,625	3,876	+ 7.2	2,734	423	748	340	695	4,940

according to the survey, a new peak for the year. The number of active rigs had been only 3625 on October 1. The 3905 operations on November 1 this year exceeded the 3876 of November 1 last year by 7.2 percent.

The above figures include wells drilling, rigging up, and temporarily shut down.

The 3905 operations of November 1 included 2734 wells actually drilling, 423 rigging up, and 748 temporarily shut down.

The 3625 operations on October 1 had included 2468 wells making hole, 355 rigging up, and 802 shut down. The 3717 of September 1 had consisted of 2552 wells drilling, 351 rigging up, and 814 shut down.

States and districts that were more active on November 1 than on October 1 included Illinois, most of the Eastern States (where crude prices have been increased lately), Michigan, all of the Rocky Mountain states, New Mexico, Arkansas, Louisiana, Kansas, Oklahoma, and all districts of Texas except the eastern portion of the state. Thus nearly all states and districts have shown gains in drilling, and the few exceptions have not had material declines.

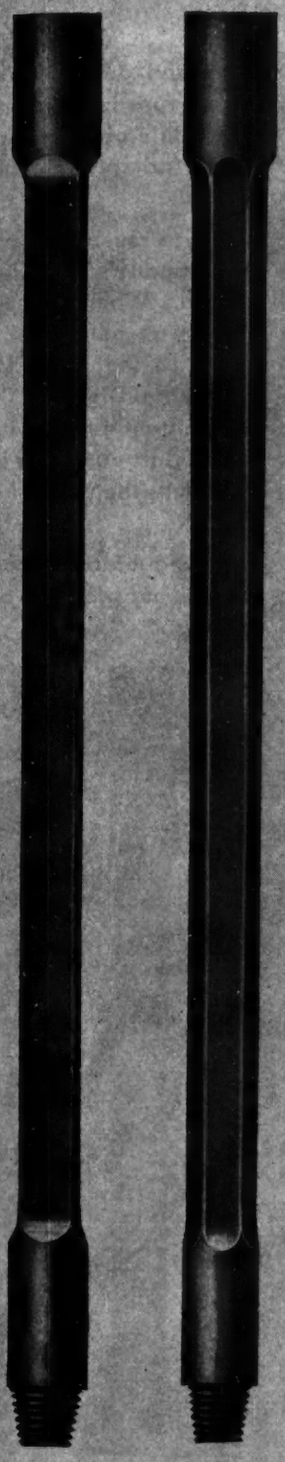
October Spurt Brings Completions for 10 Months of 1939 Near Those of 1938

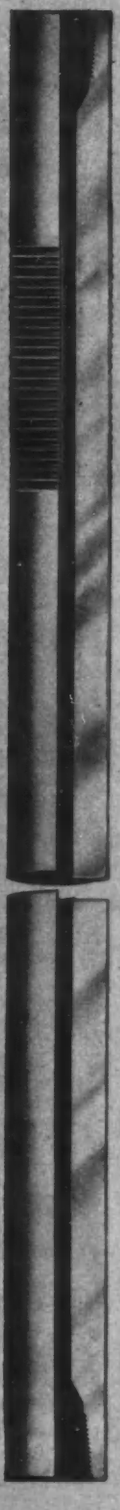
STATE OR DISTRICT	*October, 1939, COMPLETIONS AND CRUDE OIL PRODUCTION: Total Wells	Oil	Gas	Dry	Initial Production	Production for October	COMPLETIONS AND PRODUCTION IN FIRST 10 MONTHS, 1939 AND 1938 — WELLS COMPLETED: 1939: 10 Mo.	1938: 10 Mo.	Percent Change	DETAILS OF 1939 DRILLING: Oil	Gas	Dry	Initial Production	BARRELS PRODUCTION: 1939: 10 Months	1938: 10 Months	Percent Change
Arizona	1	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...
Arkansas	21	14	...	7	5,968	2,034,400	199	184	+ 8.2	157	2	40	66,324	17,008,700	15,307,000	+11.1
California	104	86	2	16	63,713	19,217,800	920	1,095	— 16.0	695	7	218	588,379	187,693,100	210,179,100	—10.7
Colorado	3	3	...	...	651	115,200	18	6	+200.0	7	2	9	966	1,164,150	1,175,050	— 0.9
Eastern States	929	634	119	176	164,567	3,179,550	6,915	5,778	+ 19.7	4,532	1,029	1,354	996,630	†29,651,750	45,734,100	.....
Illinois	437	346	1	90	148,120	9,637,750	3,073	1,259	+ 59.2	2,419	24	630	939,193	69,277,250	.....	.....
Indiana	52	30	3	19	13,851	.....	214	123	+ 74.0	88	26	100	34,631	.....	.....	.....
Kentucky	49	19	9	21	915	.....	535	661	— 19.1	216	77	242	14,684	.....	.....	.....
New York	†78	†78	...	...	297	.....	‡508	‡588	— 13.6	‡464	23	21	1,691	.....	.....	.....
Ohio	109	27	55	27	587	.....	798	788	+ 1.3	189	399	210	3,374	.....	.....	.....
Pennsylvania	‡136	‡121	6	9	145	.....	‡1,312	‡1,778	— 26.1	‡1,075	156	81	1,726	.....	.....	.....
West Virginia	68	13	45	10	652	.....	475	581	— 18.2	81	324	70	1,631	.....	.....	.....
Kansas	198	142	14	42	*aa*368,999	5,211,150	1,193	1,430	— 19.8	839	52	302	*aa*1,657,698	47,194,000	49,563,250	— 4.8
Louisiana	145	107	2	36	31,755	8,118,100	922	911	+ 1.2	609	30	283	193,052	78,111,400	79,354,450	— 1.6
North Louisiana	26	19	2	5	3,438	2,050,000	270	438	— 39.2	172	19	79	52,249	20,920,150	23,974,100	—12.8
South Louisiana	119	88	...	31	28,317	6,068,100	652	473	+ 37.8	437	11	204	140,803	56,709,300	55,380,350	+ 2.4
Michigan	173	97	7	69	43,682	1,989,950	1,242	797	+ 55.8	678	73	491	329,934	19,264,450	15,893,200	+21.2
Montana	20	16	1	3	905	527,300	120	69	+ 74.0	88	12	20	8,806	4,634,100	4,074,400	+13.0
New Mexico	84	65	4	15	27,543	3,500,350	536	438	+ 23.3	447	13	76	236,022	27,393,650	31,326,900	—12.9
North Dakota	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Oklahoma	224	136	10	78	29,815	13,053,200	1,711	1,820	— 6.0	1,036	115	560	342,186	126,635,600	143,681,650	—11.9
Southeastern States	4	1	1	2	120	10,800	16	19	— 15.8	3	1	12	486	10,800	.....	.....
Alabama	...	...	...	...	...	...	...	1	...	...	...	...	...	...	.....	.....
Florida	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	.....
Georgia	...	...	...	...	...	...	1	1	...	...	...	1	...	...	.....	.....
Mississippi	...	...	...	...	...	10,800	11	15	— 26.7	2	.....	9	366	10,800	.....	.....
Tennessee	4	1	1	2	120	.....	4	2	+100.0	1	1	2	120	.....	.....	.....
Texas	903	653	35	215	436,217	42,218,530	7,979	10,579	— 24.6	5,653	238	2,087	3,937,423	396,252,030	394,091,750	+ 0.5
East Texas Field	39	34	1	4	87,358	13,616,100	388	1,645	— 76.5	376	1	11	1,144,575	115,983,100	126,086,800	— 8.0
Rest of East Texas	24	9	1	14	2,038	2,636,200	258	428	— 29.8	105	26	127	37,835	27,661,350	28,677,000	— 3.5
North Texas	146	87	1	58	48,685	2,568,750	1,387	2,140	— 35.4	844	6	537	369,857	21,789,150	22,053,550	— 1.2
South Texas	279	181	16	82	68,852	6,397,350	2,324	2,319	+ 0.2	1,526	71	727	632,255	68,685,050	68,138,200	+ 0.8
Corpus Christi Area	173	121	11	41	58,014	.....	1,171	1,022	+ 9.7	880	46	245	506,137	.....	.....	.....
Laredo Area	83	51	4	28	9,785	.....	826	892	— 7.4	501	20	305	114,796	.....	.....	.....
San Antonio Area	23	9	1	13	1,053	.....	327	405	— 18.0	145	5	177	12,322	.....	.....	.....
Texas Gulf Coast	107	81	6	20	22,171	6,459,000	1,154	1,291	— 10.5	876	47	231	236,458	64,706,600	60,927,700	+ 6.2
Texas Panhandle	49	38	8	3	12,985	2,086,300	342	495	— 30.9	259	65	18	102,638	19,437,730	20,085,200	— 3.1
West Texas	218	198	1	19	174,576	7,126,300	1,732	1,966	— 11.9	1,518	6	207	1,346,986	65,729,750	59,343,700	+10.8
West Central Texas	41	25	1	15	19,552	906,500	394	295	+ 33.6	149	16	229	66,819	8,205,150	9,779,150	+16.2
Utah	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Wyoming	16	10	1	5	8,012	1,977,550	103	83	+ 24.1	73	5	25	77,371	18,122,200	15,984,550	+19.7
Total United States	2,825	1,964	196	665	1,181,947	111,444,050	21,875	23,213	— 5.8	14,818	1,579	5,478	8,435,477	1,925,348,800	1,006,366,350	+ 1.9

* October completions cover not the calendar month, but the five weeks, or 35 days, ended October 28.
† Does not include Illinois. ‡ Includes water input and pressure wells. *aa* Consists largely of potential determinations made with fluid-level metering apparatus.

BAASH-ROSS CELEBRATES ITS 20-YEAR MARCH OF

Progress in DRILLING TOOLS.....





LONG PAST is the day when any square bar of steel with a hole through it and subs on the ends could qualify as a kelly, when the nearest approach to a drill collar was a bit sub, and when a plain bushing with an approximately square hole was thought good enough for the kelly drive.

From the time, years ago, when Baash-Ross designed and set up its first special boring machine for cutting the circulation hole through drill collars and kellys, this organization has continually led in the improvement of these products. One after another, these improvements have been made a part of the standard specifications to which all Baash-Ross Trubore Drill Collars and Kellys are manufactured.

A further important improvement in drill-string equipment is the new Baash-Ross Type 2R Roller Kelly Drive Bushing. Its big, free-running rollers reduce frictional resistance to the minimum, and allow the kelly to be fed through the rotary table smoothly under the highest torque loads.

These up-to-the-minute Baash-Ross drilling tools will give you extra value, increased operating efficiency, and greater economy because they are made to meet modern requirements. Send for complete information TODAY.

KELLYS

Square, hexagonal, and octagonal, made of restricted analysis range alloy steel, heat treated *over the entire length* in one operation to develop and increase uniform desirable physical properties, with the ends given a second heat treatment for maximum toughness and wearing quality. Joint alignment and concentricity of bore are held to close tolerances, checked by survey, as in Baash-Ross Drill Collars (right).

DRILL COLLARS

Made of the same alloy steels and given the same full-length heat treatment, including the second heat treatment of the ends, as Baash-Ross Kellys. Tolerance on O.D. is plus or minus 1/32". Bore tolerance is plus 1/32"—minus 0", wall thickness does not vary more than ¼" from theoretical correct in 40 feet, checked by surveys, and a ten foot test bar, ⅛" smaller than the bore must pass through freely. Alignment of projected axis of threaded joints is within ½" in 40 feet, checked by survey from joint to joint.

ROLLER KELLY DRIVE BUSHINGS

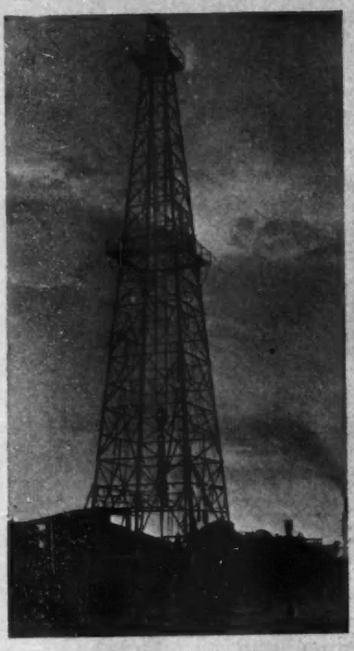
Built to withstand heavy torque loads. Extra large rollers give ample driving surface and prevent corrugating kelly faces. High roller hardness minimizes wear on O.D. of rollers; replaceable roller bushings eliminate wear on the I.D. Reversible roller pins, hardened and ground, give double service. *Made in two types—2RS for SQUARE KELLYS; 2RH for HEXAGONAL KELLYS.*

BAASH-ROSS

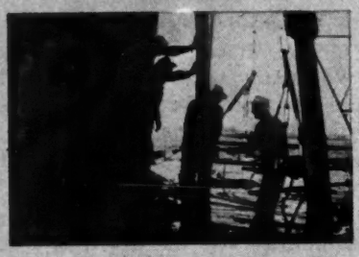
ENGINEERING • DEVELOPMENT • FIELD TESTING • TOOL COMPANY • MANUFACTURING • WORLD-WIDE USE

20 YEARS OF MANUFACTURING SAFE, MODERN OIL TOOLS

...Progress in FISHING TOOLS



(Left) 14,479 feet deep at the time the tools stuck—only 525 feet to go to equal the world's record depth — No. 1 Proctor was the scene of the deepest cutting job ever performed.



(Above) Going into the hole after another piece of the fish. The recovery record at No. 1 Proctor was: Cut No. 1—452'; Cut No. 2—335'; Cut No. 3—391'; Cut No. 4—420'; Cut No. 5—422'; Cut No. 6—122' (just above drill collar).

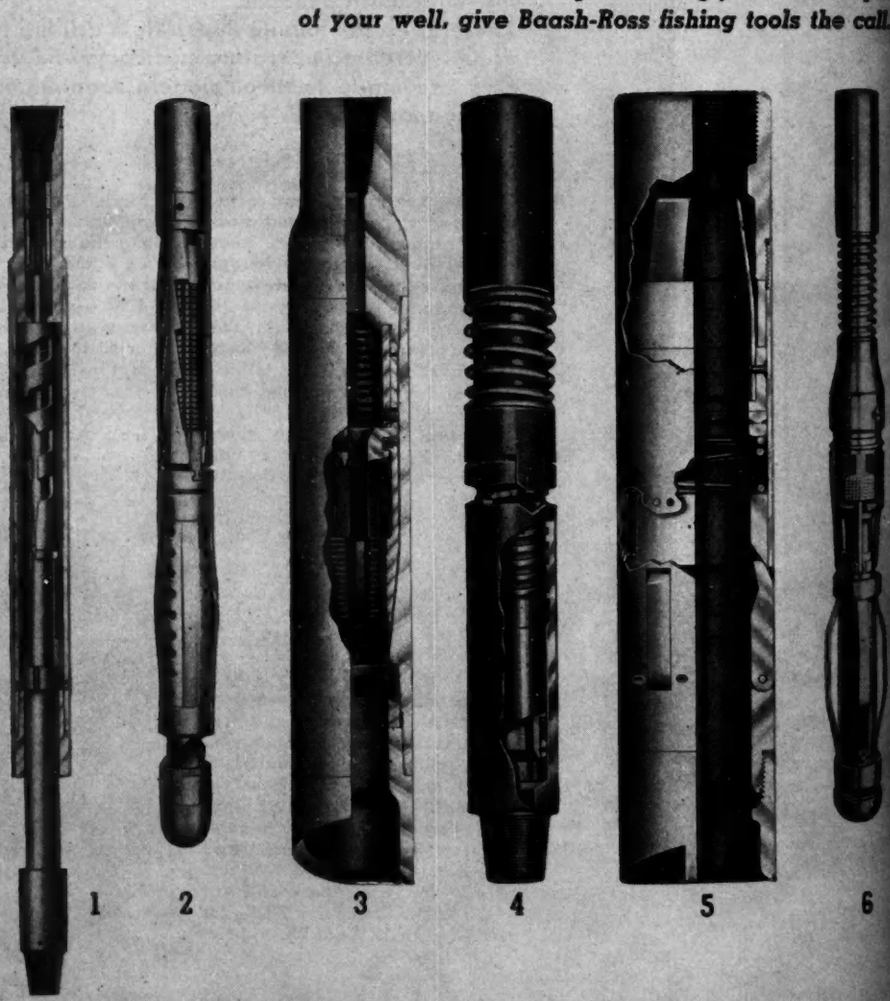
CONSTANT IMPROVEMENT, based on the experience gained during thousands of runs in all parts of the world, keeps the Baash-Ross line of fishing and pipe cutting tools up-to-date and adequate to meet modern requirements.

This is well demonstrated by a recent drill pipe cutting job in Continental Oil Company's No. 1 Proctor, Washita County, Oklahoma. When the pipe stuck at 14,464 feet, the string was backed off at 12,268, leaving a 2211-foot fish in the open hole. Using a slip-type Baash-Ross External Drill Pipe Cutter, a Baash-Ross field operator cut off and removed the drill pipe in only six cuts, the last cut being just above the drill collar at 14,410 feet—the deepest cut ever made.

Whatever the nature of your fishing job or the depth of your well, give Baash-Ross fishing tools the call.

Here is the slip-type Baash-Ross Drill Pipe Cutter that did the job. Note the smoothness of the cut surfaces.

1. ***Automatic Torque-Controlled Rotary Jar***
2. ***Rotary Releasing Spear.***
3. ***Type "B" Rotary Releasing Socket.***
4. ***Autolock Safety Joint.***
5. ***External Drill Pipe Cutter (Overshot Type).***
6. ***Internal Casing Cutter.***



BAASH-ROSS

ENGINEERING • DEVELOPMENT • FIELD TESTING • **TOOL COMPANY** • MANUFACTURING • WORLD-WIDE

20 YEARS OF MANUFACTURING SAFE, MODERN OIL TOO

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20 YEARS OF MANUFACTURING SAFE, MODERN OIL TOOLS

... Progress in PRODUCTION TOOLS

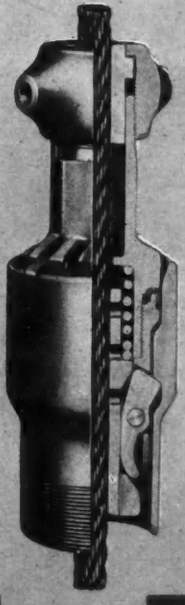
SEND FOR the bulletins describing Baash-Ross Tubing Blocks, Tubing Spiders, and Wire Line Wipers. Then you will appreciate the real progress in design and construction that they represent. These tools fit perfectly into the routine of well servicing work because they were thought out and developed in the field by practical production men.

Start saving money now by investing a little in this modern equipment. You'll find that they speed up the work with increased safety—and a few hours of crew-time saved here and there will soon pay for them.

STREAMLINE TUBING BLOCK

One to four roller bearing mounted sheaves, 20", 24", or 30" diameter. Load capacity 30 tons per sheave with safety factor of 3 to 1, based on yield point of material.

This modern streamlined block is widely used with all types of portable rigs for slim-hole drilling and prospecting work, as well as for handling tubing strings in wells of all depths.



Complete Information Concerning These And Other Baash-Ross Products Is Contained In The Composite Catalog ... Pages 167 to 218.

WIRE LINE WIPER

Confines all gas and fluid to flow lines during bailing and swabbing. Pack-off assembly automatically latches in body, and automatically releases when tools are withdrawn.

OPEN-END TUBING SPIDER

Made in two body sizes, with interchangeable slips for all sizes of tubing. Removable end-gate simplifies installation and removal. Long slips act in unison, prevent swaging. Safety handle-operated latch speeds operation.

BAASH-ROSS TOOL COMPANY

General Offices: 5512 BOYLE AVENUE, LOS ANGELES

OKLAHOMA CITY
1559 S. E. 29th St.

HOUSTON
5300 Clinton Drive

EXPORT OFFICE: 30 Rockefeller Plaza
New York, N. Y., U. S. A.

Extra Water System Conquers Excessive Engine Heating

CONFRONTED, whenever the atmospheric temperature became high, with excessive overheating of the gas/gasoline engines used to move oil from the K-M-A field gathering system to trunk lines several miles away, The Texas Pipe Line Company installed an extra cooling system that has been successful in keeping engine water below 120° F.

The extremely high temperature of the cooling water prior to the installation of the cooling method was due to the absence of sufficient ventilation, insufficient wind velocity and heat radiated in the building from exhaust manifolds. Opening doors did not relieve the situation to a marked extent, and large ventilators on the roof of the building did not carry off a large enough volume of the heated air.

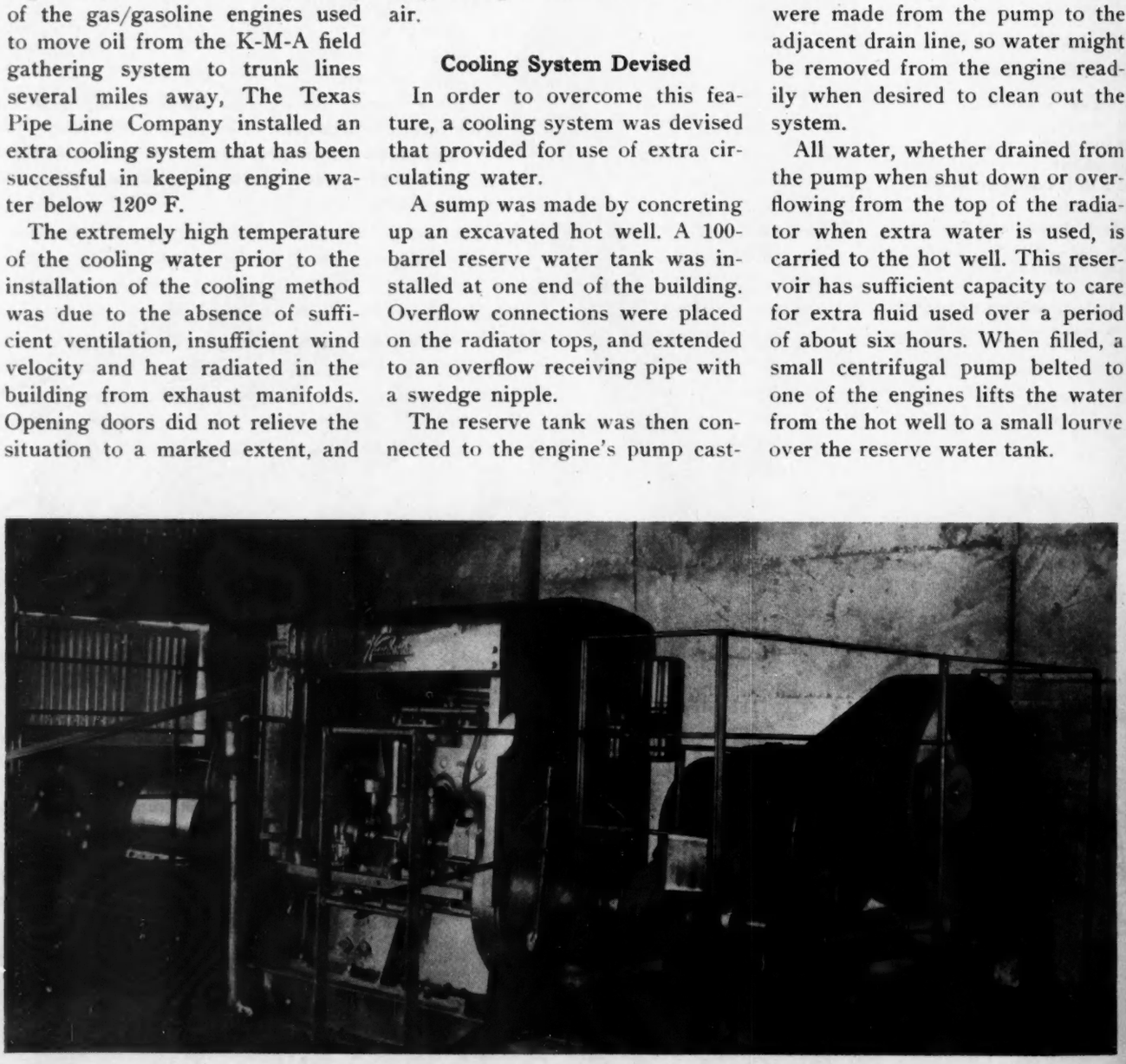
Cooling System Devised

In order to overcome this feature, a cooling system was devised that provided for use of extra circulating water.

A sump was made by concreting up an excavated hot well. A 100-barrel reserve water tank was installed at one end of the building. Overflow connections were placed on the radiator tops, and extended to an overflow receiving pipe with a swedge nipple.

The reserve tank was then connected to the engine's pump casting so that a large volume of water that had been cooled could flow into the pump. Connections were made from the pump to the adjacent drain line, so water might be removed from the engine readily when desired to clean out the system.

All water, whether drained from the pump when shut down or overflowing from the top of the radiator when extra water is used, is carried to the hot well. This reservoir has sufficient capacity to care for extra fluid used over a period of about six hours. When filled, a small centrifugal pump belted to one of the engines lifts the water from the hot well to a small lourve over the reserve water tank.



Gas/gasoline engine of The Texas Pipe Line Company at K-M-A, which has been equipped with overflow radiator connections and tied into a water reserve tank so as to procure extra cooling during hot weather.

The World's FASTEST, SAFEST SUREST *Coring Method.....*

and therefore the lowest cost per core!

THE HUNT Retractable Core Barrel represents a decided improvement over conventional methods of recovering cores by wire line. The core cutter is integral with the bit, not the barrel . . . the barrel seating in the bit just above the cutting element, rather than running through the bit. It latches under a sleeve near the top of the drill collar. Thus the barrel itself has no part in cutting the core, but merely receives it, thereby relieving the barrel of cutting strain and permitting a lighter wall . . . and a resulting larger core.

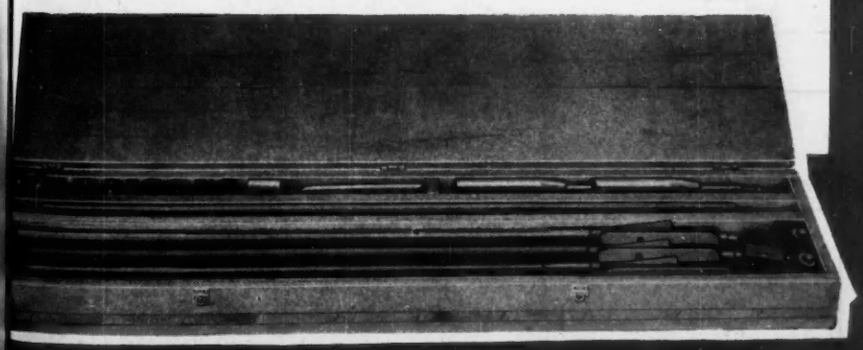
An outstanding advantage of this barrel is the drilling efficiency and speed of the core bit between coring points, it not being necessary to come out of the hole and change from core bit to regular bit between points to be cored.

The Hunt Barrel, proven by seven years of hard service, is now standard coring equipment with more than 20 major companies and many of the industry's well known drilling contractors.

The Hunt Barrel is sold or rented in U. S. fields and sold for export. It is represented on the West Coast by Dunlap Welding & Bit Works, Bakersfield, California.

Soft formation core head made in 2-way and 3-way type.

Hard formation core head made in 4-cutter and 6-cutter type.



Hunt Core Barrel and parts in packing box, ready for shipment.

Sectional view of Hunt Core Barrel, showing barrel in place for coring.

HUNT TOOL COMPANY

HOUSTON, TEXAS, U. S. A.

HUNT TOOL COMPANY

Pumping Layout Program Dictates Well Spacing

Pumping Series Article No. 27

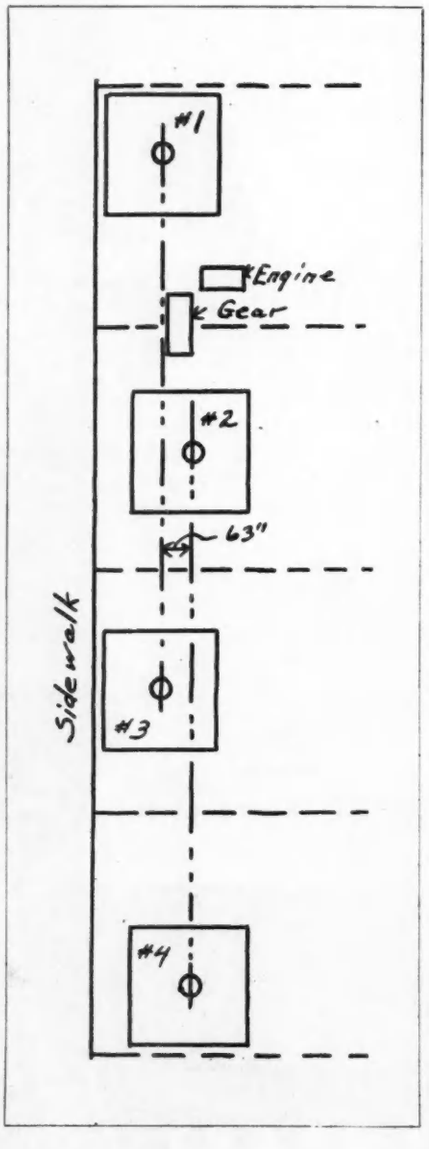
JUSTIFYING the forecast made more than eight years ago, four adjacent wells on as many town lots in Kilgore recently went on the pump with a well-engineered and smoothly operating hook-up that provides practically perfect balance with a minimum of moving parts in the mechanical connections between power and individual pumps.

These four wells were drilled to a pattern which, reversing usual practice, was fitted to the type of gear reduction unit selected for purchase and installation when natural flow should fail and mechanical lifting aid be required.

In the drilling of the wells, shown in plan in the adjoining sketch, the exact center-to-center distance across the two crank throws of the reduction unit was taken as gauge for offsetting the center lines of adjacent wells, so that when drilled, the odd-numbered wells, Nos. 1 and 3, were 63 inches nearer the sidewalk line than were the other two wells. When drilled in this manner, the rod-lines tying the odd-numbered wells could be driven in a straight line from one side of the reduction gear, without any part of the drive interfering in any way with the similar type of linkage to the other two wells.

Thus paired, the four wells so nearly balance, and approach so closely to the uniform loading of the reduction gear's main shaft, that none of the usual fluctuation is noted either in the speed or staccato bark of the exhaust of the four-cylinder gas engine powering the set-up.

At present, with the wells requiring little more than thorough agitation to enable them to make their prorated production in little more than two hours pumping per day, the provision of a 33.4 horsepower gear and a 40-horsepower engine seems grossly over engined. Checking against gas consumption, the entire friction load on gear and pumping rig, with all four wells being agitated, is a fraction over five horsepower—this figure being obtained during operation with an outside temperature of around 100 degrees F. By changing lubricant in the reduction gear case and using a lighter grade of cup grease on all shackle bearings throughout the hook-up, the entire friction load during winter operation is not expected to exceed 7.5 horsepower.



Since each pair of wells driven by this unit is balanced, with pumping strokes at 180 degrees, it is possible to disconnect either pair for swabbing or other servicing operations without affecting pumping of the remaining wells. When so operated, the drive is no different from the conventional well and back-crank drive on a two-well installation.

The four lots upon which these wells are located, facing on a 100-foot wide street, in effect afford drainage area greater than their surface measure, and this factor is taken into account by locating the wells so that the outer corners of the closer pair of derricks clear the sidewalk line by only two feet. This setting affords space behind the derricks for the lease tanks; also accomodating the slush pits during drilling operations. For the same reason, it may be noted from the sketch that well No. 4 is set as close as possible to the south line of its lot—the adjacent property not being drilled. Although perhaps lacking in symmetrical arrangement, this spacing of wells affords the greatest amount of drainage for the area covered, assuming uniform sand conditions at the producing horizon.

Staggering the well layout for such town-lot production affords a worthwhile reduction in outlay for pumping equipment, provides all straight-line drives between wells, and enables flow lines to be manifolded to lease tanks or separator with a minimum of fittings and turns.

The Job That Faces Oil Industry Today

By FRANK BUTTRAM, President
Independent Petroleum Association of America

THE domestic petroleum industry today stands in the front rank of American business. Through all the difficulties of a ten-year depression it has greatly increased the demand for its products, added to its employed force, continued its high wage scales, reduced its price to consumers, added more barrels to the nation's known petroleum reserve than it produced and eliminated wasteful practices which were the natural consequence of pioneering in a field where none had past experience to guide them. This accomplishment without that intervention or assistance of Government that some now advocate would seem to encourage our further efforts through self control, state regulation and federal cooperation. While the industry is not receiving the amount of money for its products which it should, nevertheless the economic position of the industry today ranks well when compared with many others in this country.

This is the only industry with a definitely planned production program which it developed for itself. Ten years ago when the Independent Petroleum Association of America was organized, the industry was facing the certainty of a depression and set about devising plans to meet it. It recognized the disturbance caused by the importation of great quantities of low-cost foreign oil. It saw the danger in the excessive stocks which had accumulated, largely as a result of post-war hysteria. It faced the temptation of wasteful overproduction resulting from the necessity of meeting financial demands in spite of an improper price structure. That was the situation 10 years ago.

Today the situation is quite different. We have reduced our storage to a fair economic level. We have brought production to a practical balance of supply with demand. During the past 10 years storage additions have occurred in only two years. The situation today is not perfect but it marks a tremendous advance over the conditions which prevailed 10 years ago. This change in the position of the industry did not happen by accident. It was the result of sound thinking and cooperative effort. The part played by the I.P.A.A. in bringing about this improvement in the condition of the industry is generally recognized. It has encouraged proper cooperation within the industry and between the industry and the various regulatory bodies. It has from time to time proposed to authorized agencies definite and practical plans for balancing supply with demand. It has aided in bringing about a general acceptance of the policy to conserve our petroleum resources through the avoidance of wasteful production.

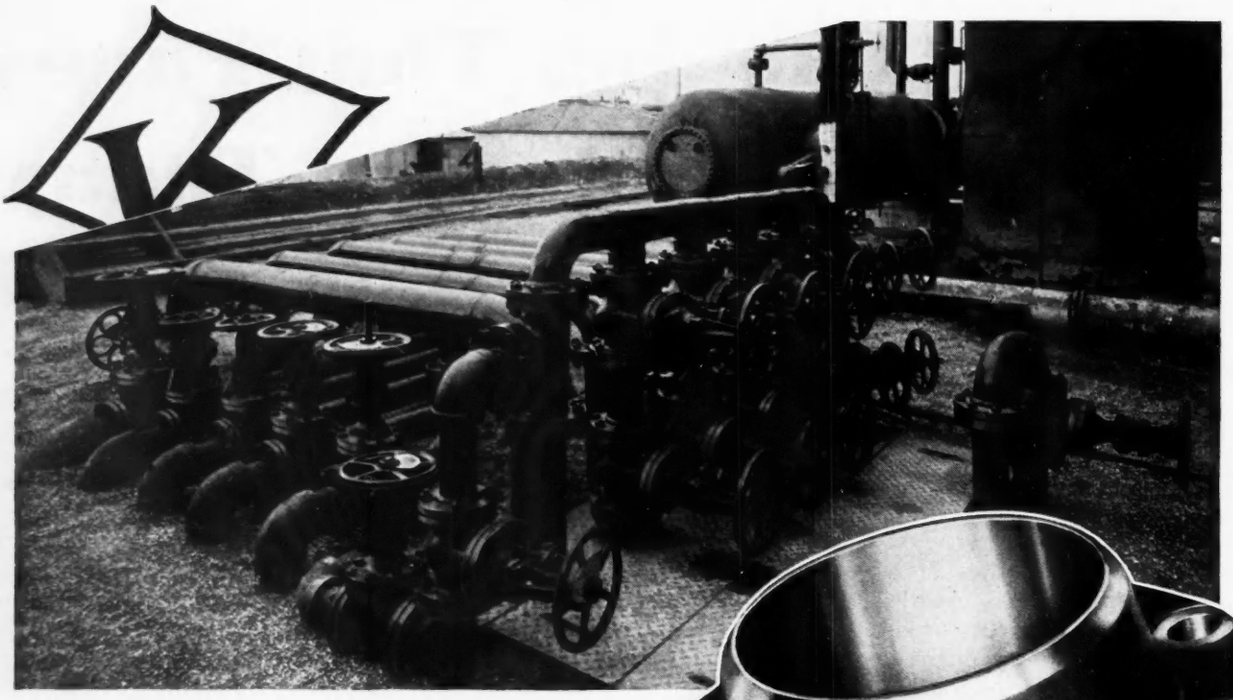
One of the most significant steps in the avoidance of waste and the encouragement of sound practices in production was taken when the I.P.A.A. adopted and recommended to official groups its "Standards in Conservation Laws." The following is a summary of those standards which were restated at our recent annual meeting and which are broad enough to satisfy the most rigid requirements of conservation:

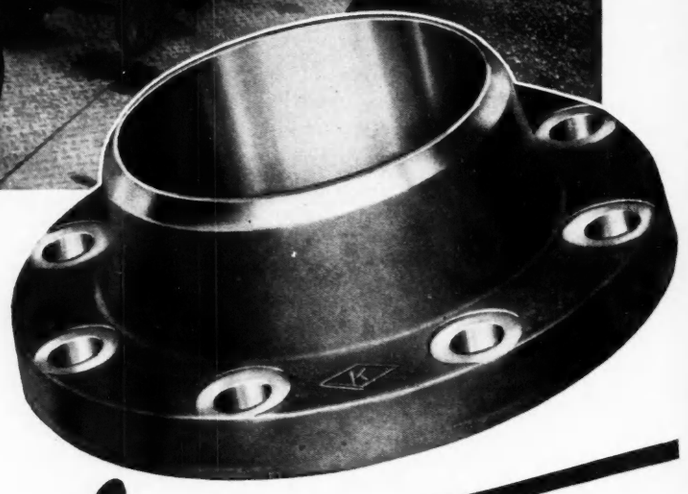
Economic stock levels, not exceeding the quantities necessary to maintain a continuous flow to the consumer; effective balance of supply with demand; restriction of imports to proper percentage of total demand, including exports; no restriction on production of stripper wells; basic allowable production for wells which will provide a financial return to the operators sufficient to enable them to keep the well in operation and prevent premature abandonment; effective utilization of the reservoir energy so as to obtain the greatest economic yield; ratable takings from all wells in a common source of supply and prohibition of pipe line proration; elimination of special allowables and discrimination in purchases; spacing of wells so as to eliminate the drilling of unnecessary wells; prevention by all producing states of waste of all kinds.

There is a tendency today to return to the practices which caused the difficulties which we have been correcting. We are producing too much oil. There are those in the industry who are urging still greater production. Our runs to stills are excessive. We are threatened with unbalanced inventories. All these involve the problem of waste and are not in harmony with the sound program which the greater part of the industry has been following. We must meet the situation fairly and squarely, remembering where a similar course had led the industry. We must remember too what the industry may face if it does not continue its development of self control.

Those causes which are today disturbing the industry in many quarters must be removed. The threatening disturbances must be halted. The trend toward excessive supply must be checked. Whatever stands in the way of the continuance of those sound policies which have prevailed over the last 10 years must be removed.

That is the job which faces us today. Judging from its record in the past 10 years, the industry can accomplish this job. Whether the industry does this by itself with the aid of state regulatory bodies or through some other method, the great body of the domestic industry will insist that the job must be done.





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HIGHLIGHTS IN THE WEEK'S NEWS

Control

First control bill hearings hear government side

First hearings on the proposed Cole bill, which provides for joint federal and state control of oil production, were held in Washington last week and consisted of a parade of engineers, geologists and statisticians from the Department of Interior and representatives of the Army and Navy.

These men, in testifying before the oil subcommittee of the House Interstate and Foreign Commerce Committee stated (see story page 102 this issue) that only through federal regulation can effective conservation of petroleum be brought about. However, they admitted at the same time that in the past five years conservation has made great advances under state control, that proven reserves of the United States are much greater than ever before and that no one can foretell how long the nation's oil supply will last.

With Secretary of the Interior Harold L. Ickes acting as rear guard, a small army of interior department experts aided the Cole subcommittee to bring up to date its 1934 investigation of the oil industry, ably supported by a Navy plea for special conservation in California and, incidentally, the presentation of a little propaganda for the proposed acquisition of the coastal underwater oil lands.

From the tenor of the questioning of witnesses, it appeared that members of the subcommittee for the most part were highly skeptical of the asserted necessity for the legislation, which Representative William P. Cole, Jr., chairman of the investigating committee, introduced in Congress July 26 at the request of President Roosevelt. Because of the tenor of the questions, it was generally believed in Washington that the measure probably would meet the same fate that has befallen previous efforts of Secretary Ickes to secure control of the oil industry.

The subcommittee, headed by William P. Cole, Jr., (Dem. Maryland) as chairman, has as members the following Representatives: Edward A. Kelly (Dem., Ill.); Herron Pearson (Dem., Tenn.); Carl E. Mapes (Rep., Mich); and Charles A. Wolverton (Rep., N. J.). This is the same subcommittee that investigated the industry in 1934, with the exception of Pearson who took the place of Samuel B. Pettengill.

House opposition to Cole control bill predicted

Bitter opposition to federal control legislation for the oil industry, should it ever reach the floor of the House, was predicted last week by Representative Wesley E. Disney (Dem., Okla.).

Declaring that the bill now under consideration by the Cole subcommittee "goes way too far and is too drastic," the Oklahoma congressman asserted "there has been too much of this type of legislation" which, he said, encourages the federal departments to "run hog wild."

Representative Disney announced that at the appropriate time he will appear before the subcommittee to oppose the bill on the ground that the states are acting effectively to bring conservation about. States that do not now have conservation laws, he predicted, will probably enact them in the near future.

California voters defeat control bill

For the second time an oil control bill for Califorina has been defeated in a special election as the Atkinson measure was turned down last week. Thus, the state continues to rank as the largest producing area without a conservation statute. Apparently, the voluntary proration plan that has been used in recent years will continue, setting allowables and reporting on progress of production curtailment in the more than 60 fields in the state, with J. R. Pemberton acting oil umpire and Lawrence Vander Leck as chairman of the Central Committee of California Producers.

Although proponents of the Atkinson oil control bill carried 24 of the total of the 58 counties in California, the heavy vote cast against the measure in Los Angeles County swung the bill into the defeat rank from the start of voting. The bill was on the ballot with the "Ham and Eggs" pension measure, which was defeated by a large majority, and its defeat was attributed by some to this situation. No doubt, some voters cast a "no" vote against all the measures, not understanding just what each meant.

It is interesting to analyze the returns by counties. For instance, the bill carried in most counties situated north of San Luis Obispo, while the southern counties went against it. San Francisco carried the bill by a safe margin, and numerous other counties where the vote was light, particularly in areas where the price of gasoline has been steady. The returns reveal that the "no" vote was prevalent in areas where there is keen competition between major and independent operators, like Los Angeles, Riverside and San Diego counties. Even Bakersfield went against the bill, likewise Santa Barbara County.

The question after the election on November 7 was "what is coming next?" Proponents of control were wondering if opponents would play ball with the Central Committee's voluntary curtailment efforts.

Illinois control prospects grow more remote

As the mythical deadline for convening of the Illinois legislature into special session draws close, prospects for early enactment of an oil conservation law for Illinois grows more remote. The session is, however, certain to consider a severance tax on oil production.

Primary purpose of the special session, which Governor Henry Horner has indicated would be called this month, is to pass legislation increasing maximum benefits under the old age pension act to $40 a month. Necessary state legislation on this matter must be passed by January 1 if the state's aged are to receive the benefit of the new federal social security act which becomes effective on that date.

A 3 percent severance tax on oil production is offered by administration leaders to raise an estimated $2,100,000 annually to pay the state's share of the increased pension.

Governor Horner has made it clear that he would not include oil conservation in the special session call unless all factions within the industry first agreed on a measure. One bill has been presented, bearing the endorsement of the Illinois-Indiana Petroleum Association, the Petroleum Association of Illinois and the Independent Oil Producers and Royalty Owners' Association. It has, however, drawn the fire of the Illinois Oil Producers' Equity Association, representing some independent operators and refineries in the state.

Opponents of the measure maintain

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it would create a monopoly for major companies and squeeze out independent refineries and small operators. A number of legislators are asking that the subject of oil conservation be put over until the next regular session, in January, 1941; maintaining that the subject is too controversial to be handled during a special session when legislation is not given as much study as during a regular session.

Courts

Injunction against new East Texas proration order denied

The Federal Circuit Court has refused the application of Humble Oil & Refining Company for an injunction against the new East Texas proration order instituted by the Railroad Commission on September 29. Justice Kennerly dissented from the reasoning, but not from the conclusions.

By refusing the injunction, the court did not determine any issues in the case finally. After a trial on the merits, the court may decide that the order is unreasonable, or that the Humble is now getting its fair share of the oil.

As part of the basis for its conclusion, the court pointed out that in its suit against the original order providing for proration on the basis of 2.32 percent of the hourly potential, Humble had asked for an allowable equivalent to 144 percent of the amount it was getting. Under the new order (issued later) it is allowed 148 percent of the amount it received under the old order.

However, the increase was sought when the total field allowable was 520,000 barrels daily, whereas the total field allowable under the new order is 690,000 barrels per day.

In its conclusions of law, the court said:

"Under the law of Texas the holder of an oil lease is the owner of the oil in place under the lease and is entitled to produce his fair share of the oil drawn from the common reservoir. The Railroad Commission has authority to prorate the amount each well shall be allowed to produce but its orders must be reasonable and fair. The findings of fact by the commission are not conclusive and any party in interest has the right to appeal to the courts for relief. However, orders of the commission, promulgated after a hearing, are entitled to weigh prima facie. Usually, courts do not permanently set them aside unless convinced they are invalid, after a hearing on the merits. In this case the interlocutory injunction was issued to prevent irreparable loss until a hearing could be had on the merits and final decree entered. It is apparent from the above facts that the order of September 29th does not deprive the plaintiff of the benefit of the interlocutory injunction heretofore issued. There is no occasion to enter another interlocutory decree at this time.

"The application should therefore be denied."

The injunction hearing was held in the court for the Western District of Texas, with Judges Rufus E. Foster, Wm. H. Atwell and T. M. Kennerly sitting.

Appeal court upholds East Texas proration decision

The United States Fifth Circuit Court of Appeals has upheld a lower district court ruling in the now famed Rowan and Nichols Oil Company suit against the East Texas proration order of the Texas Railroad Commission. The appeals court declared that in entering an order prorating the amount of oil allowed to be produced from each well, the commission should take into consideration the amount of oil in place under the lease as well as other revelant factors and should so administer the order as to allow each lease owner to produce his fair share of the oil from the common reservoir.

By ruling that oil in place should be considered in allocating allowables, the appeals court affirmed the lower court ruling, which resulted in an injunction granting Rowan & Nichols nearly a 100 percent allowable increase. Meanwhile, the commission prepared its current proration order.

In the first decision handed down by District Judge McMillan at Austin, it was provided that the allowable on the Rowan and Nichols Todd B lease should vary in proportion to the top allowable of the field. This, the railroad commission contended, precluded it from writing any order for the field as a whole that would apply to Rowan and Nichols. However, the New Orleans Circuit Court of Appeals withdrew that factor and amended the judgment to read "without prejudice to the right of the commission to enter a reasonable proration order and to fairly enforce it."

However, the circuit court of appeals modified one important clause, which the commission interpreted as giving it more latitude than was allowed in the original case.

Railroad Commissioner Jerry Sadler announced November 10 that the commission would file immediately a motion for rehearing in the case. Meanwhile, reversing an earlier decision, the commission will not ask Rowan & Nichols to comply with the newest East Texas proration order (instituted September 29). The commission had considered issuing such instructions because of the change in the one clause. Sadler pointed out that only about 90 barrels daily is involved in the Rowan & Nichols case, while the issue of a proper order for the entire field is of vast importance. He declared that the commission is anxious to obtain a decision on the case from the United States Supreme Court.

While Sadler offered no explanation, it appeared that the commission thought the case might become moot if Rowan & Nichols was forced to comply with the new order.

New East Texas proration attack is expected

Another court attack on the Railroad Commission's proration regulations for the East Texas field is pending. Defensive measures are to be taken by owners of leases on the west and northwest edge of the field, who have formed a body known as the Committee of West Side Operators.

J. H. Edwards, Maceo Production Company, is chairman of the body, and F. N. Spellers and Jack Blalock have been engaged as engineer and counsel respectively. The group proposes to obtain an adjustment in the oil allowable of edge leases. Finances are to be raised by assessments on a well basis.

East Texas water pollution suit filed

Suit against 49 East Texas oil operators charged with pollution of streams leading into the Neches River system was announced last week by Attorney General Gerald Mann. He said the suits were based on complaints filed by the State Game, Fish and Oyster Commission, and that they would be filed in the state courts in Dallas County.

Long Beach seeks to get title to tideland leases

More than 600 acres of California tidelands occupied by railroads, wharves, shipyards, oil wells and numerous industrial plants are involved in a suit brought by the City of Long Beach against a group of oil companies. Long Beach is endeavoring to establish title to the square mile of highly improved ocean front property said to be worth millions of dollars. The case resumed last Friday before Federal Judge Ralph E. Jenney.

Long Beach contends that the property claimed by the city as former tidal and submerged lands was inherited by the city from the state, that the state inherited it from the federal government.

Defendant companies are Union Pacific Railroad Company, Richfield Oil Corporation, Pacific Dock & Terminal Company. They contend their titles trace back to the old Mexican grants and their confirming United States patents.

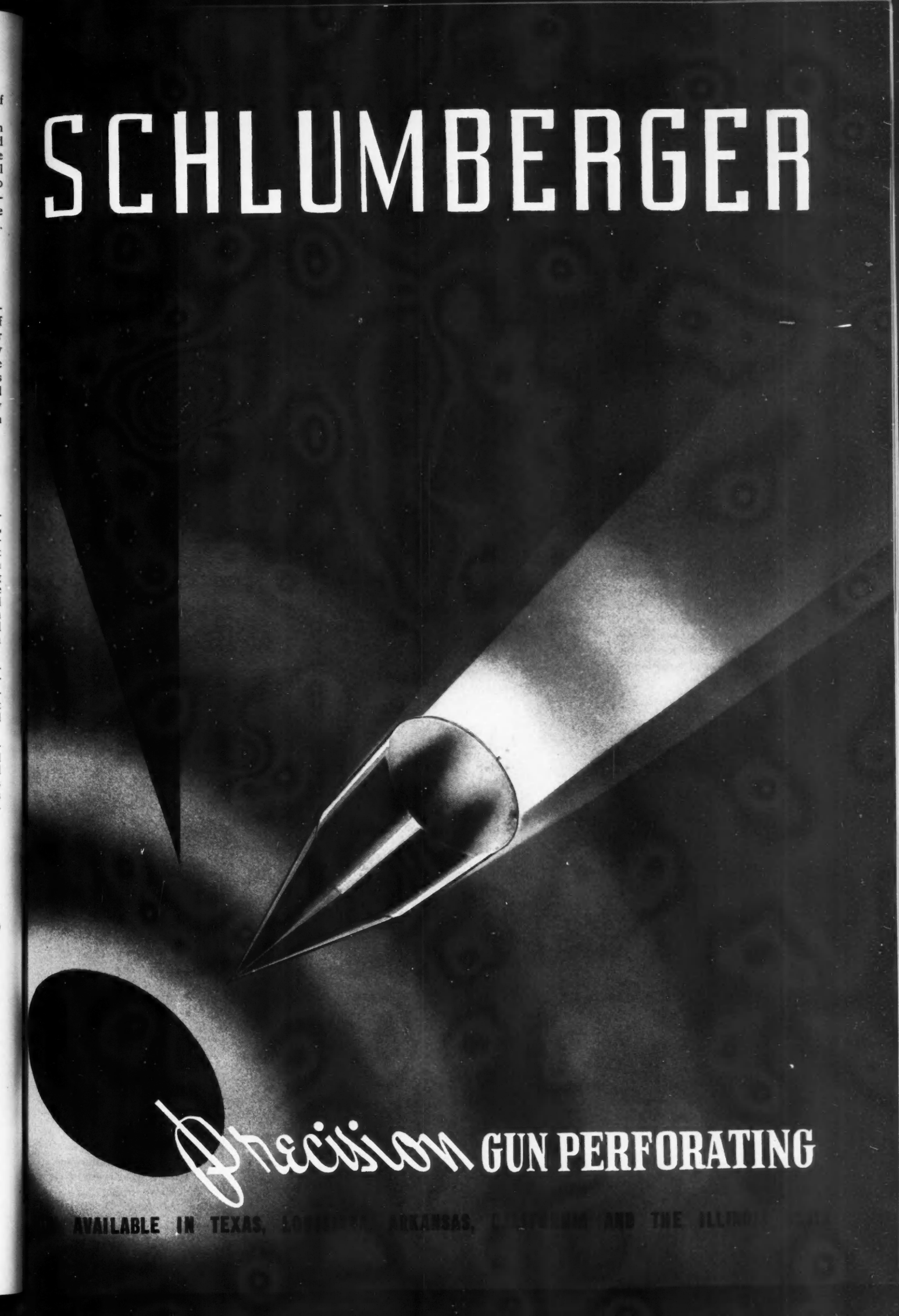
Supreme Court upsets Tax Appeal Board's decision

Oil producers computing their depletion allowance are required to deduct development costs in applying the 50 per cent limitation, if such expenses are to be treated as ordinary expenses in arriving at net income, it was held by the United States Supreme Court November 6 in decisions upsetting findings to the contrary by the Board of Tax Appeals.

Reversing a decision of the Ninth Circuit Court of Appeals, affirming a ruling of the board in the case of Wilshire Oil Company, the court held unfounded the company's claim that Treasury regulations issued in 1929 under the 1928 revenue act could not apply to taxpayers who under the 1921 and 1924 acts had made an election as to the method of computing depletion.

"These regulations applied prospectively only and did not purport to reach back to earlier years when the taxpayer

SCHLUMBERGER



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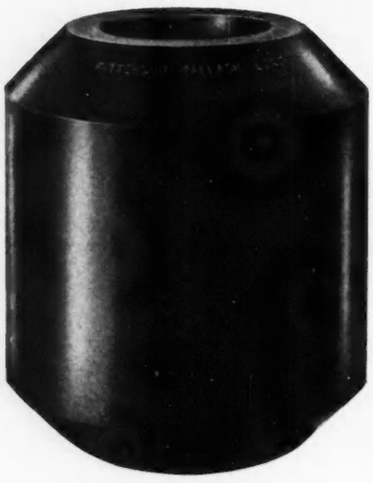

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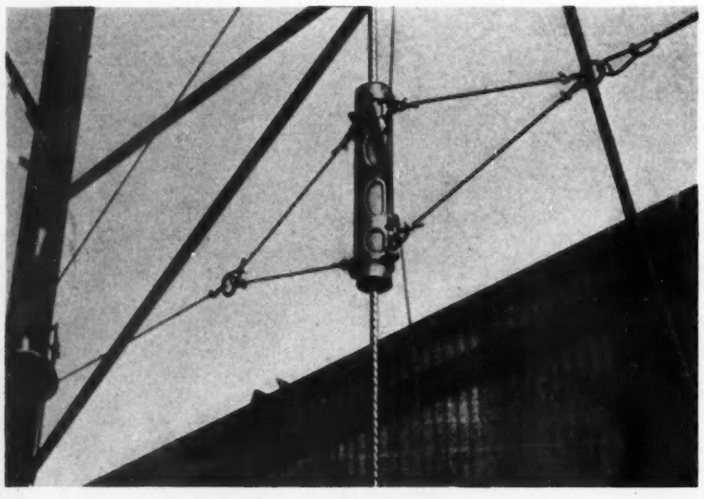
Patterson-Ballagh Stabilizers are extra large diameter and do not interfere with mud circulation. If used on stove-pipe casing these Stabilizers will practically eliminate trouble from collapsing or from a broken seat.

TUBING PROTECTORS

A molded, reinforced plastic protector fabricated onto the tubing collar. Oil and gas-proof. Saves collar and casing wear caused by pulsation of the tubing in pumping wells.



WIRE LINE GUIDES

Embodying a freely swinging, heavy, rubber-lined cylinder, the Patterson-Ballagh Wire Line Guide effectively dampens the whip and irons out the "traveling wave" which is prevalent when drilling at fast speeds or when tall derricks are used. Made in single, four, and six section units. By stabilizing the line, excessive fatigue is eliminated, proper spooling is obtained and there is a reduction of strand wear and kinking.

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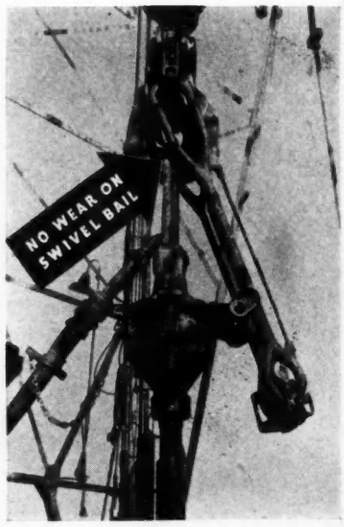

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An inexpensive, effective wiper for low pressure wells. The rods are so effectively wiped that no appreciable oil remains on the rods or couplings.

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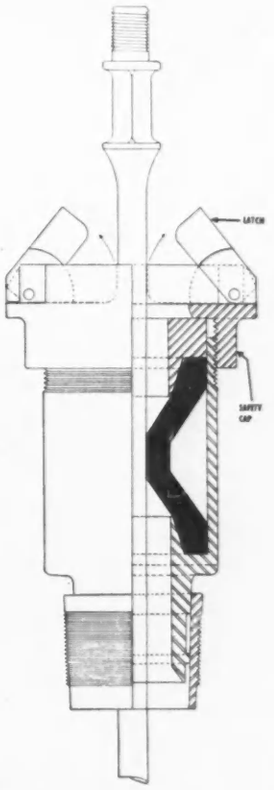
To the left is illustrated the new Patterson-Ballagh Portable Flange Grinder, designed for the rapid grinding of rotary drum flanges in place without their removal from the drawworks or the drum. A simple, portable, rugged unit that will hold a close adjustment under heavy oil field duty. Can be operated by regular drilling crew.



SUPER UNIVERSAL MUD GUNS

Newest addition to the Patterson-Ballagh family of products is the Super Universal Mud Gun. Made of heavy cast steel with double balanced flow and single outlet for operations where mud is jetted on a 24-hour basis and where the heaviest type of gun is needed. The double flow eliminates the hydraulic reaction that causes other guns to spin. Locking device holds gun in any desired position.

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relied on a different rule or practice," it was commented by Associate Justice Douglas in delivering the opinion of the court. "Tax statutes and tax regulations never have been static. Experience, changing needs, changing philosophies inevitably produce constant change in each. One making an election in the 1925 return took the risk that the method of treatment of depletion might be changed by the congress or, where power existed, by the commissioner."

Holding that there could be no question of the validity of the regulations complained of, the court held that the revenue laws had given the commissioner of internal revenue the authority necessary for their promulgation.

A similar view was expressed in an opinion affirming a Fifth Circuit Court of Appeals decision reversing the Board of Tax Appeals in the case of the F. H. E. Oil Company.

Allowables

Texas changes statewide proration hearing date

The Texas Railroad Commission has changed the date of its next statewide proration hearing from November 20 to November 17, because the former date conflicted with other hearings. The purpose of this meeting is to obtain material for basing allowable production during December.

Texas to hold November output to bureau quota

Texas Railroad Commissioner Jerry Sadler announced last week that Texas production for November will be held within the original estimate of consumer demand received from the United States Bureau of Mines. Sadler made this announcement upon his return from Washington, where he had discussed with Bureau officials the prospect of an increase based on demand statistics presented at Railroad Commission hearings.

He found the Bureau adamant in its determination to order no increase now, although evidence was presented that the demand for Texas oil is approximately 350,000 barrels daily in excess of Bureau estimates.

Wants Refinery Control

Because Sadler emphasized the importance of controlling gasoline stocks and recommended that if a special session of the Texas Legislature is called a bill be introduced to control refiners, it appeared that this was the paramount issue which prevented revision of Bureau statistics.

Sadler pointed out that stocks of refineries were increasing at the rate of 2,000,000 barrels a week approximately, and that the total is now nearly 90,000,000 barrels.

"I am warning the whole oil industry," Sadler declared emphatically, "that, unless they stop increasing refinery stocks, we will not only have chaos, but we will be in a hell of a fix."

Sadler announced that he planned to appear before the next meeting of the Interstate Oil Compact Commission to urge the enactment of refinery control legislation in other states. It is expected that this meeting will be held in Michigan late this month or early in December.

Several Texas fields are given allowable increases

The Texas Railroad Commission last week increased the allowable production of several fields, and scheduled hearings on other applications for increases.

The Conoco-Driscoll field, Duval County, obtained an increase from 80 to 100 barrels for 16 wells owned by Continental Oil Company. This was effective November 10.

Effective the same date, the allowable for Tomoconnor was raised 1800 barrels daily net. The current basic allowable, not considering shutdowns, is 16,266 barrels, so the total increase will be about 2700 barrels for the basic allowable.

The Pickett Ridge field, effective November 10, was raised from 1462 to 1983 barrels daily.

The Emperor field, Winkler County, received a gain of three barrels per well, raising its allowable from 2262 to 2468 barrels daily. This also was effective on November 10.

The La Rose field, Refugio County, was raised 1000 barrels daily. The former basic allowable was 5016 barrels, while the net was 3177 barrels. This became effective November 10.

An order effective November 7 raised the allowable for the new Refugio field from 3812 to 5359 barrels daily.

Another order provided for an increase of 6721 barrels daily in the allowable for the Talco field, Titus and Franklin counties. This order, retroactive to November 1, raised the field allowable from 36,014 to 42,735 barrels daily.

New Requests Made

Meanwhile, the commission received requests for allowable increases in other fields, some of the requests have been heard and hearings have been scheduled on others.

The Texas Company last week asked permission to operate its 98 wells in the Jennings Ranch field, Zapata County, for six days of each week. The current allowable is 1176 barrels daily, and no increase was requested. The field produces 22 gravity oil from sands at 900 and 1975 feet. E. P. Hayes, company engineer, said the oil was needed as a substitute for heavy Gulf Coast crude, for which his company has a demand.

W. L. Pickens has requested an allowable of 100 barrels daily for the Blanchard field in Duval County. There are now two wells in the field, Pickens told the Commission at a hearing in Austin last week. The total allowable is now 65 barrels daily. J. B. Blanchard, petroleum engineer for Pickens, testified that there are several outlets for the oil in the event Humble Oil & Refining Company does not desire to purchase the additional crude. Humble is the only buyer in the field now. Production is from the Pettus sand at 4700 feet, and the first well was completed in May, 1939.

The Southern Minerals Corporation requested an increase of 2500 barrels daily net in the allowable for the Aransas Pass field, Aransas and San Patricio counties, at a hearing before the Texas Railroad Commission last week. The company owns about 20 percent of the producing wells in the field.

The additional oil would go to the Philadelphia plant of Atlantic Refining Company. The top allowable now is 66 barrels per well, 80 percent of which comes from a sand producing at 7100 feet. The company contends that this is a lower allowance than is granted to other fields nearby where producing conditions are similar.

With shutdowns, the daily average production is actually 41 barrels per well but, if the increase were granted, the average would be 52 barrels per well. Two hundred thirty-two wells would be affected by the order.

The Texas Railroad Commission has announced that hearings for allowable increases on the following fields will be held November 21: East Premont field, Jim Wells County; Joe's Lake field, Tyler County; Flour Bluff field, Nueces County.

On November 20, the Commission will hear the application for an increase for the Beddo field in Runnels County, and a hearing on the Fitzsimmons field, Duval County, is set for November 21.

The Texas Railroad Commission has set a hearing for November 21, at Austin, on the Amity field, Comanche County, to consider an application for an allowable increase.

The Magnolia Petroleum Company has requested a hearing on the West Ranch field, Jackson County, for an increase in allowable. A new pipe line to the field has just been completed. The Commission set the case for November 18.

A hearing to consider an application for an increase in the allowable for the Amelia field, Jefferson County, has been postponed from November 10 to November 13.

L. T. Burns, operator of the Burns pool, Clay County, asked for an allowable of 100 barrels daily for each of the 2 wells in the field at a hearing before the commission last week. Burns also requested that the wells be permitted to produce for 7 days of each week. Representatives of Burns said there was a demand for the additional oil, and that it could be produced without waste.

New Kansas Allowable Plan Proposed by Commission

A new method for allocating pool allowable in Kansas has been proposed by the Corporation Commission. The proposed plan provides: first, all wells in minimum pools shall be allocated daily an amount equal to their ability to produce; second, each minimum well in any prorated pool shall be allocated daily the amount which it is able to produce; third, every other well in prorated pools shall be allocated 15 barrels per well per day, and finally, the total of the above three allocations shall be deducted from the daily market demand as determined by the commission. The remainder of the daily market demand so calculated shall be allocated to the wells having a productivity of more than 15 barrels daily in the direct proportion (percentage) which it bears to the remaining aggregate productivity of all wells having the ability to produce more than 15 barrels per day after deducting 15 barrels per well per day pre-

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viously allocated in the third division. Productivity will be determined in accordance with the rules of the commission, giving consideration to the acreage properly attributable to each well.

Corrects Old Methods

This method corrects the former existing method in that it recognizes the relation of the daily productive capacity of each prorated well and pool to the total daily productive capacity of all prorated wells and pool in the state. This base allowable plan is open to suggestions of all operators as to its feasibility.

A formula has been devised to compute the allowable for any prorated well:

$A = 15 \text{ bbls.} + [(P-15) \times 1.3\%]$

Where A = Allowable for any proratee well

P = Productivity.

Operators have challenged present proration rules in suits still pending, while enforcement of rules in several pools have been barred by injunctions.

Weak wells keep Michigan fields in line

With the flat allowable of 100 barrels per well remaining unchanged from October to November, allowed production under schedules announced by the Michigan Conservation Department show an increase in the Walker field, Kent County, from 450,249 in October to 610,608 in November. The difference is almost entirely accounted for in an increase from 151 wells at the end of September to 214 at the end of October. However, actual production probably will not gross more than 460,000 barrels for November, despite new wells during the month, as around 60 percent of the total wells can make 100 barrels.

The November allowable for the New Salem field was set at 197,407 barrels from 64 wells; the allowable for the Freeman-Redding field, Clare County 543,000 barrels from 109 wells. Actual production will be from 20 to 30 percent less in both fields due to inability of many leases to make the full allowed proration.

Imports

U. S. halves import tax on petroleum from Venezuela

A 50 percent reduction in the import tax on crude petroleum and fuel oil, accompanied by an annual quota of imports not in excess of 5 percent of the total quantity of crude petroleum processed in United States refineries during the preceding calendar year, and guarantee of continued duty-free entry on fuel oil used for vessel bunkers, are granted Venezuela in a reciprocal trade agreement signed with that country November 6.

Oil Major Item

One of the few items of Venezuelan export on which the United States could grant concessions, the reduction in the excise tax on crude and fuel oils from ½ to ¼ cent per gallon, was the major advantage given Venezuela in return for concessions on a number of commodities which we sell extensively in that country.

The reduced tax, however, it was explained by the State Department, will apply only to imports not in excess of 5 percent of the total crude processed in refineries in the continental United States, and any imports in excess of the quota will pay the ½-cent rate, which is bound against increase.

What Quota Applies To

The quota will apply to the combined imports of crude oil, topped crude, and fuel oil, including gas oil from all sources. The latter provision means that the quota will apply to receipts from Colombia, Mexico and any other countries from which such products may be imported, with no separate quota assigned any single country.

Pointing out that refineries in 1938 processed 1,165,015,000 barrels of crude oil, the department pointed out that 5 percent would be 58,251,000 barrels which could come in under the reduced tax, while the average annual imports of taxable crude and topped petroleum and fuel oil for the years 1933-38 was 34,569,000 barrels.

"The United States share of the known world reserves of crude petroleum is somewhat less than 50 percent," the department said in an explanatory statement. "On the other hand, this country produces slightly over 60 percent of the total world output, notwithstanding the fact that the principal domestic fields are being operated under restrictions in order to avoid wasteful production.

Venezuelan Crude Heavy

"Fuel oil (in one or more grades) is obtained from nearly all grades of crude petroleum and is produced in most refineries. Venezuelan crude is much heavier than the average domestic crude and yields principally heavy fuel oil and asphalt. Domestic crudes yield larger percentages of gasoline and kerosene, and superior grades of lubricating oil, the more valuable petroleum products. Fuel oil from domestic crudes consists chiefly of grades much lighter than imported fuel oil or fuel oil produced in this country from imported crude. The domestic demand for all grades of fuel oil, including both the heavy grades for ships' bunkers and industrial plants and the lighter grades for Diesel engines and residential heating, has been increasing. Production in the United States of heavy fuel oil from low-grade foreign crude and the importation of heavy fuel oil tend to reserve the high-grade domestic crudes for the production of the more valuable petroleum derivatives.

"The United States leads the world in the production and consumption of petroleum products. This country is also important both as an importer and an exporter of crude petroleum and petroleum products. The domestic industry has been on an export basis for many years. In 1938, imports of crude petroleum amounted to 26,048,000 barrels as compared with exports of 77,272,000 barrels. Imports in that year of fuel oil of all grades (including tax-free entries for use in ships' bunkers) amounted to 26,165,000 barrels as compared with exports of 43,832,000 barrels.

"Venezuela is the most important supplier of United States imports of crude petroleum accounting for 85 percent of the total in 1937 and 90 percent in 1938. Imports of fuel oil are supplied almost entirely by the Netherlands West Indies, but most of the fuel oil refined in the Netherlands West Indies is produced from Venezuelan crude."

Independents protest Venezuela treaty

In a sharp attack on the agreement, issued immediately following its announcement by the State Department, the Independent Petroleum Association of America declared its net effect is to give "Standard of New Jersey and Gulf Oil Company a much greater opportunity to control our domestic market and take this market away from the domestic producer."

"Since their controlled possessions in Venezuela give them an opportunity to import their oil into our market so much more cheaply than we can produce it they will be enabled to determine the price they will pay for American crude," it was pointed out. "Thus the State Department places its arms around what already has been classed as a menacing monopoly and assures it the right to continue."

The statement, issued by Russell B. Brown, counsel for the association, held that under the agreement the State Department admits we receive concessions on 35.9 per cent of our exports to Venezuela in return for concessions on 88.6 per cent of our imports from that country.

"Some possibly unrelated events cast their shadows before this proclamation," Brown said.

"The information showing what companies import petroleum products, which we had been using for over a year, is now refused us.

"Some big refineries have been running large amounts of oil through their stills. This will increase the amount of oil admitted at the cut rate of tax in the next calendar year. We are not saying that these had advance information about the agreement but are merely remarking on the coincidence.

Discrimination Hinted

"The tax subcommittee will hear this week the Treasury Department's plan for the new tax bill. One day the State Department grants an excise tax exemption to a few favored companies, possibly on the ground that the Government does not need these revenues, and the next day the Treasury Department discusses plans to tax the domestic industry which employs American labor and spends millions in this country for American products."

Brown pointed out that in 1938 the Standard company imported 58.4 per cent of all our foreign oil receipts and Gulf brought in 22.6 per cent, while the remaining 19 per cent represented imports by all other companies.

"This is a victory for back-door methods in dealing with government," he charged. "We asked, demanded and begged the department to tell us who proposed these reductions in petroleum but were repulsed each time. It was only recently that I discovered that attorneys for the Standard of New Jersey were advising the State Department on oil. How they did this is not disclosed by the records in this case. Certainly there was no open appearance."

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Government Witnesses at Control Hearing Questioned Closely by Committee

WHILE admitting great improvement in conservation under state control during the past 5 years, that proven reserves are much greater than ever before and that no one knows how long the nation's oil supply will be sufficient to meet demands, engineers, geologists and statisticians from the department of interior and representatives of the army and navy last week declared that only through federal regulation can effective conservation of petroleum be brought about.

These declarations came at the first hearings on the Cole bill, which provides for joint state and federal oil production control, before the oil subcommittee of the House Interstate and Foreign Commerce Committee in Washington last week. Witnesses consisted only of the parade of government men, with subsequent hearings to take testimony from oil representatives. The subcommittee is bringing up to date its 1934 investigation of the oil industry, and hearings last week were to permit various federal agencies to do this.

From the tenor of the questioning of witnesses, it appeared that members of the subcommittee were highly skeptical of the asserted necessity for the legislation, which Representative William P. Cole, Jr., introduced in Congress July 26 at the request of President Roosevelt. Therefore, it was believed likely that the measure would meet the fate that has befallen previous efforts of Secretary of the Interior Harold L. Ickes to obtain control of the oil industry.

At the outset of the hearings, Representative William P. Cole, Jr., (Dem., Md.), chairman of the subcommittee, explained that their purpose was to hear government representatives only, bringing up to date the information furnished by the various federal agencies in the 1934 investigation.

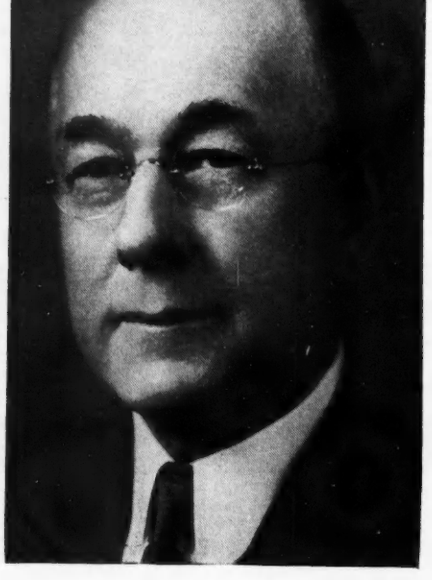
The subcommittee, he said, might reconvene sometime in December to hear state regulatory commissioners, but neither the date nor place of such hearings had yet been determined, and it was unlikely that any further testimony would then be taken until after congress convened in January.

Bill's Author Testifies

First witness to appear before the group was David Hudson, assistant solicitor of the interior department, author of the bill introduced by Representative Cole, who outlined briefly the gist of its various provisions, only to be subjected immediately to a barrage of questions by members of the subcommittee as to the extent of the authority which the interior department sought and what checks, if any, there were upon the activities of the proposed administrator.

Under questioning by Representative Herron Pearson of Tennessee, only member of the subcommittee who did not serve during the 1934 investigation, Hudson admitted that the bill provides no direct recourse from the abuse of the discretionary rights which are vested in the contemplated commission, but contended operators would have recourse in the courts when regulations were issued.

The first direct attack on the legislation was made by Representative Charles A. Wolverton of New Jersey, who sought to bring out a comparison between the present bill and legislation proposed several years ago by Nathan R. Margold, solicitor of the interior department, which contemplated full federal control of the oil industry. Hudson, however, insisted he had no knowledge of the Margold bill and had not used it in preparing the current measure.



—Harris & Ewing.

CARL E. MAPES, (Rep.) of Grand Rapids, Mich., born December 26, 1874. Is a lawyer. Was elected to the 63rd Congress which took office March 4, 1913, and is fifth in seniority among the 435 members of the House. Believed opposed to Federal control.

"Does this bill directly or indirectly seek to control marketing?" Wolverton asked.

"No," Hudson replied.

Wolverton pointed out that oil-trade papers had contended it did and that writers in the oil press had expressed the fear that the bill would affect the movement and price of oil to the consumer.

"I think that goes far beyond the provisions or effect of this bill," Hudson contended, explaining, in response to further questions, that the legislation is confined to the prevention of physical waste and is concerned only with production.

"Who will be the final determining authority as to what is or is not waste?" the New Jersey congressman continued.

"Under the standard laid down in the definition of waste in the bill, it is the duty of the commissioner to apply the fact found by investigation in a field to that definition and to arrive then at the determination of whether those facts constitute waste," the witness explained.

"At the present time the federal government exercises some assistance to the state regulatory bodies in determining what is a proper production ratio," Wolverton pointed out, "but under this bill would it be possible for a state regulatory body to have a different opinion as to the amount of production that would be proper than that which was expressed by this federal agency?"

"I think that would be possible, and

Members of the Committee

—Harris & Ewing.

EDWARD A. KELLY, (Dem.) of Chicago, Ill., born in that city April 3, 1892. One-time professional baseball player, accountant with the Illinois Steel Company, and a member of the American Expeditionary Force in France. Organized E. A. Kelly Company, real estate and insurance, after discharge from the Army and was elected to Congress November 4, 1930, winning reelection in subsequent campaigns. Was a member of the original oil committee of 1934. Believed to be opposed to Federal control.

that is one of the reasons for the co-operative provisions," Hudson said.

Federal Versus State Control

The congressman, however, insisted that under the bill the agency would have the right "not only to disagree with production figures fixed by a state regulatory body but, in the event of disagreement, the power to set aside the state's finding and set up its own figures."

"It would not have the power to set aside any state order, but if it were determined that some method or practice in the production of petroleum in that field constituted waste, the regulation would so define it," Hudson asserted.

"Then it would have the effect of giving this federal regulatory body the right, where it found waste, to go into court and stop that waste, even though the state regulatory body would not be of the opinion that waste was being permitted," Wolverton insisted.

"I do not wish to imply that I have any particular viewpoint at this time as between the necessity for federal control or whether continuation of state control is sufficient," he added, "but I am anxious to know just what is the purpose of this bill with respect to federal control as opposed to state control in the event there is a conflict between the two as to what would be the proper amount of production."

"Insofar as the commissioner is authorized to issue regulations, my answer would be that those regulations would control if they were of a more restrictive nature than under state law," the witness explained. "If they were not of a more restrictive nature, they probably would not be issued."

"Then, in that event, this bill does seek to supersede state control," the congressman held.

"I am more concerned as to what would be the power of the federal government to act in a case where the state regulatory body is not of the same opinion as the federal regulatory body with respect to what is waste," he said after Hudson asserted the bill would "serve to complement state control."

"To me it seems a very vital thing to clear up. There is a fear upon the part of some that this bill will supersede the state entirely in its control and that it is placing in a federal bureaucracy a power that should reside in the state."

Although he admitted having drafted the bill, the witness said he was not sufficiently familiar with that matter to answer the congressman, and Wolverton expressed wonder that anyone else would be better informed as to the contents of legislation than the man who drafted it.

Continuing his examination, Wolverton asked Hudson whether operation under the Connally Act and the state compact has proved insufficient, but failed to induce the witness to give any definite answer. He finally charged that the section outlining the policy of the bill to prevent waste was inserted to supply a basis to sustain the constitutionality of the measure, which Hudson admitted.

Cites Radio Broadcasts

During the hearings both Wolverton and Representative Carl E. Mapes of Michigan referred repeatedly to radio broadcasts on conservation sponsored by the interior department, and apparently intended to show what will happen some day when our oil supplies are entirely dissipated.

Mapes also asked the witness whether he was aware that the navy department was opposed to that section of the bill which would put the control of the naval petroleum reserves under the proposed oil administration, which Hudson admitted.

"My impression from the testimony before the monopoly committee is that considerable improvement in reduction of waste of oil has been accomplished in the past few years," the congressman commented. "So far as I am concerned I would like to hear testimony as to how much waste there is now in these different fields and to what extent the state authorities and the petroleum industry are able to handle the situation."

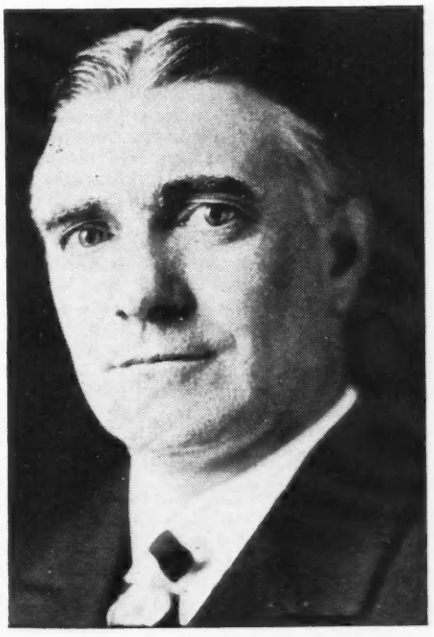
Representative Pearson also expressed concern about the administration bill depriving the states of their regulatory powers.

Estimates of reserves were placed before the subcommittee by H. D. Miser, geologist in charge of the United States

Investigating Oil Control

—Harris & Ewing.

HERRON PEARSON, (Dem.) of Jackson, Tenn., was born in Taylor, Texas, July 31, 1890. Moving east instead of west, he took his degree from the Cumberland University Law School at Jackson, where he served as municipal judge in 1915. Was elected to Congress November 6, 1934, and is the only member of the present oil subcommittee which did not serve in the original investigation, taking the place of former Representative Samuel B. Pettengill of Indiana. Stand on Federal control unknown.



—Underwood & Underwood.

CHARLES A. WOLVERTON, (Rep.) of Camden, N. J., was born in that city October 24, 1880, and took his law degree at the University of Pennsylvania. Active in Camden politics, he was assistant city solicitor from 1906 to 1913, assistant prosecutor of Camden County, 1913 to 1914, and special assistant attorney general of New Jersey from 1915 to 1918, leaving to become a member of the state legislature. After another round as prosecutor of the pleas of Camden County from 1918 to 1923, he was elected to Congress in 1926, serving continuously since. Opposed to Federal control.

WILLIAM PURINGTON COLE, JR., (Dem.) of Towson (outside of Baltimore), Md., chairman of the oil subcommittee of the House Committee on Interstate and Foreign Commerce. Born May 11, 1889, and raised in Towson, he took a civil engineering course at Maryland Agricultural College, studied law at the University of Maryland. Went into the Army in August, 1917, as a lieutenant and came back from overseas in 1919 as a captain. Was elected to Congress for the 70th Congress in 1926, missed out on the 71st Congress but came back in 1931 for the 72nd and has remained since. Was chairman of the special House Committee which investigated the oil industry in 1934. In the past has been opposed to Federal control.

Geological Survey, whose testimony that proven reserves were estimated in 1934 at 13,360,000,000 barrels and in December, 1935, by the Petroleum Administrative Board at 10,638,000,000 barrels, and had increased by last January to from 14,000,000,000 to 17,500,000,000 barrels elicited from committee members pointed questions as to why it was now considered necessary to impose federal control.

Further, Miser testified, even the latest estimates do not include Mississippi and Nebraska, which may be heavy producers, Illinois reserves have doubled during the current year, and new discoveries may be expected to be found for years to come.

Despite the contentions of committee members that if there was so much oil available, after fears had been expressed years ago that exhaustion was near, and it was likely that new reserves would continue to be found, the witness asserted there was a need for consideration.

Questioning the witness along this line, Wolverton pointed out that the same line of testimony had been given at every hearing the subcommittee has held over a period of years, "yet for a period of many years there has been a gradual increase in the known reserves of oil in this country."

If the federal agencies are to press for legislation, he suggested, they should make a study to determine the exact extent of the national oil reserves, rather than to submit merely the estimates of others. Also, he insisted, the authority to regulate production means the ability to regulate price.

Miser defended the department's lack of figures on the ground that it would take a long time and a much larger number of geologists than are now employed by the government to secure such information.

White Commends Industry

Alfred G. White, chief economist of the petroleum economics division of the Bureau of Mines, declaring flatly that the industry for several years had been attempting to reduce above-ground stocks to proper levels, testified that current crude oil stocks are in the neighborhood of 230,000,000 barrels, or well within the range of 205,000,000 to 250,000,000 set by the bureau as the desirable minimum. Refined stocks also are not excessive as a whole, he said, although there is some excess of gasoline and heavy oil in California.

White predicted that total demand for 1939 would reach an all-time peak of approximately 1,415,000,000 barrels, an increase of 380,000,000 barrels, or 37 percent, over 1934. Exports, however, he said, will be only about the same as, or possibly a little less than, last year, although they will be about 75 percent above the 1934 level. The current demand, he told the subcommittee, will be about 6½ percent over 1938.

War Demands

Asked by Chairman Cole as to the effect of war upon production, White said that foreign estimates of belligerent needs placed them at from 50 to 600 percent above normal requirements, but that he thought such figures "ridiculous."

Pointing out that demand has increased many times since the world war, the witness said that by rationing the belligerent countries may reduce normal consumption by anywhere from 25 to 75 percent.

There is little evidence yet of much larger exports during the final months of this year, he said, but it is not anticipated that domestic demand will increase more than 10 percent in the near future, and it will be possible for the industry readily to meet both foreign and domestic demand with the present wells and present refinery facilities. There is plenty of reserve oil to meet any situation during the next year or 18 months, he declared.

Miller on Stand

Probably no oil field in the United States would be unaffected by all provisions of the proposed legislation, the subcommittee was told by Harold C. Miller, senior petroleum engineer of the Bureau of Mines, stationed at San Francisco.

Bringing up to date his 1934 report on the production branch of the industry, Miller, under the questioning of subcommittee members, admitted that while all fields would be affected by the measure "I cannot really say whether it would be any easier for a federal commissioner to enforce some of these things than it is for the states."

"Some of the states are doing a pretty good job now; others not so good," he commented. "But they are all working toward that end."

Outlining some of the difficulties of federal control, at the request of Chairman Cole, Miller admitted that federal regulations on spacing probably would be as difficult to enforce as those of the states and would result in innumerable court actions. The ideal, he said, would be a spacing pattern with no exceptions. On the whole, he thought, the commissioner would have to confine his spacing regulations to new fields.

Asked by Congressman Pearson whether legislation such as is proposed should not be confined to new fields discovered in the future rather than applied to presently operated fields which are probably in violation of most of the bill's provisions, the witness said that if this was done methods outlined for the new fields might be so expensive as to make it impossible for them to compete with the older areas.

Unavoidable Waste

At the request of the chairman, Miller analyzed the wasteful practices outlined in Section 6 of the bill which the commissioner is to prevent. Many of the wastes enumerated, he admitted, are unavoidable and, if possible, would be remedied by the industry itself; others are avoidable and are being avoided, at least by those operators who are "in business to stay," and hardly any are deliberately resorted to by operators who understand their effects in reducing recovery.

Outlining the developments of the past 5 years, Miller cited the improvement in prospecting methods resulting from the application of geophysics and said that new geochemical methods appear even superior.

Commenting upon methods used in controlled fields, he said that the operators appear to have reconciled themselves to proration and are seeking to deal with its problems. With respect to well spacing, he said, the industry is working the problem out as well as it is reasonable to expect and, asked by committee members what the government could do to help, suggested only that it be made easier for small operators to combine in large units and overcome the rule of capture.

Gas Waste Reduced

State control has materially reduced the loss of natural gas, in 1934 one of the larger problems before the subcommittee, he said, Texas having brought the waste down to probably 2 percent of production and California to 5 percent.

Miller, like previous technical men who have testified, asked to be excused from answering questions with a legal slant, such as Chairman Cole's repeated inquiry that, in case of conflict between the federal and state agencies on such questions as spacing and the like, which would win, and Representative Mapes' pointed inquiry as to what would happen if the federal commissioner found that the optimum rate of recovery necessitated restricting production to half the consumer demand.

"I gather from your testimony that laying down a formula to govern the conduct of the fields in the future, assuming that this bill were to go through, would require provisions as to spacing, location, drilling and other items about which there is little testimony among engineers," Chairman Cole commented.

"On some of the items there might be some disagreement," Miller replied, pointing out that spacing and well completions are subjects of constant discussion in the industry. "In other words," he said, "petroleum engineering is still a science that has not yet been definitely pinned down to engineering principles such as we have in many other lines."

Miller admitted that no rule could be laid down for application to all fields or even to all wells in a field and that each is a problem in itself.

Oil From Coal Expensive

Methods for the production of oil from coal have been developed to a point where every type of coal produced in the United States, including anthracite, could be used for that purpose, but the cost of the oil would be several times that of natural petroleum, it was testified by A. C. Fieldner, chief technician of the coal division of the Bureau of Mines.

Explaining that the coking of bituminous coal produces benzol, which is blended with gasoline and could be used itself as a motor fuel, Fieldner said that the production of benzol last year was less than 1 percent of the total gasoline output and that if the entire 440,000,000 tons of bituminous coal mined last year was coked the resulting benzol would be only about 1,100,000,000 gallons, or 4 to 5 percent of the gasoline consumed.

Accordingly, he testified, the country cannot look to that method for replacing its gasoline supply and it will be necessary to resort either to hydrogenation and liquefaction or the Fischer process of synthesis, or both, which have been developed in Germany.

The witness explained that Germany has several commercial plants for hydrogenation and in 1938 produced

about 900,000 metric tons of gasoline, equivalent to about 50 percent of the German consumption; the country also has a number of Fischer plants with an estimated annual capacity of 500,000 tons. The hydrogenation process also has been adopted in England, where there is one plant with a capacity of 140,000 tons, but the best available estimate on the cost of production by either hydrogenation or synthesis, reported by the Falmouth committee in England, is from 12 to 25 cents per gallon, the spread being due principally to various rates of plant amortization used and the varying cost of coal. With a new, modern plant, he estimated, the cost would be from 16 to 19 cents.

"Taking all these costs," Fieldner told the subcommittee, "it appears to me that about the best figure to take at the present time for either of these 2 processes would be about 18 cents a gallon, and if we built plants in America and considered our lower coal cost and perhaps improvement in manufacturing technique, we might bring it down to 16 cents, and perhaps, in the distant future, with intensive research such as has been applied to refining oil, a possibility of as low as 12 cents. But under present conditions, the estimate of 18 cents is probably the best we can get."

However, he added, "when the time comes, there is no question that such fuel can be made from American coals."

Scores Low Export Prices

Bringing the information in its 1934 report up to date, the subcommittee also heard H. A. Breakey, chief economist of the petroleum division of the Bureau of Mines, who took the attitude that the export sales of oil at prices lower than those which could be secured in the United States was a form of preventable waste, although he refused to recommend a policy which would prevent such sales.

Breakey, disagreeing with White, who had said current gasoline stocks were not unduly high, held that such stocks are 5,000,000 barrels too great but, when asked by Representative Mapes whether he thought it would be desirable to pass legislation to fix the amount of storage, said he did not think the excess was so heavy as to require such action.

The witness also told the subcommittee it could not look to World War experience as a guide to what may happen in the near future, since not only was the use of motor vehicles in its infancy but new sources of oil have since been developed in other sections of the world. However, he added, any increased world demand can be met by the American industry with comparatively little effort.

The Navy's Stand

Voicing the navy department's approval of strict conservation of American oil resources, but its opposition to vesting any control of the naval petroleum reserves anywhere but in the navy department, Rear Admiral H. A. Stuart, director of naval petroleum reserves, told the subcommittee Wednesday that acquisition of title to the California submerged lands by the federal government would add another 10 years' peace-time supply to the navy's fuel "backlog."

"The importance of petroleum and its products as necessities of modern warfare can no longer be denied and those departments of the government charged with the defense of the United States must be assured of ample supplies of these vital materials if they are to be able at all times to carry out their missions," Stuart declared. "To this end the navy department is of the opinion that the petroleum resources of the United States must be conserved and the naval petroleum and other naval fuel reserves protected, as far as it is possible to do so, from depletion by operations conducted on both fee-owned and leased land within and without the reserves."

Navy department opinion, he disclosed, is that while there are ample oil reserves in the United States their exploitation is largely dependent on much higher prices than now prevail, because of the increasingly greater development and production costs.

"Naval Petroleum Reserve No. 1, in California, constitutes what is probably one of the few remaining large areas in the United States where, from comparatively shallow wells, it can be reasonably anticipated that, within a relatively short period of time, intensive drilling will develop a daily production of oil sufficient to meet a sudden national crisis," he explained. "It is not improbable that some day the safety of the United States may depend on the oil remaining in this reserve and therefore it must be protected from further depletion and the government's lands therein must be consolidated so that the largest possible area will be embraced in a single tract of land."

Demands Additional Reserves

In the most vigorous demand for additional reserves ever voiced before a congressional committee, Stuart declared that with a large increase in the tonnage of the navy, larger air forces in both the army and navy, and the tendency for complete mechanization of various army units to increase their mobility and effectiveness, "the necessity for the government to possess adequate petroleum reserves in the ground becomes a constantly more important factor in the missions of the country's armed forces to provide properly for the defense of a nation and its outlying possessions.

"The success of military operations at home and of naval operations at sea are becoming more and more dependent on having available for all requirements ample supplies of the best possible fuels—all of which are dependent on access to large reserves of petroleum. In war time the facility and speed with which both the army and navy can maneuver will unquestionably determine the effectiveness of military and naval operations and will be dependent on an abundance of proper fuels for all purposes during the entire period of action. Any country which has limited petroleum reserves attempting an aggressive war or fighting defensively against a foe having access to practically unlimited supplies of oil will be, even though it may possess some superiority in armaments, in the long run up against a disadvantage almost impossible to overcome."

Outlining the possibilities of the four present oil reserves, Stuart estimated that they would furnish a peace-time supply adequate for 20 years. Detailing some of the litigation in which the government has engaged in the effort to clear the title to these reserves, he disclosed that the department is hopeful of concentrating its holdings in Reserve No. 1 under the authority of legislation enacted last year, which will permit the department to make exchanges of land with private owners or acquire privately owned lands within the naval reserves by purchase or condemnation.

Not Enough for Future

However, he said, surveys of the petroleum reserves with a view to determining their adequacy for the materially expanded navy tonnage which is in prospect disclosed that the potentials of the present reserves are "far from sufficient for the navy's future needs," and for this reason the department has been "extremely anxious to add to its present petroleum reserves any other proved or potential oil lands which might be found suitable." These possibilities, he indicated, lie in the submerged oil lands off the California coast.

"Although both the navy department and the department of justice received numerous letters from individuals seeking to persuade the government to take some action to prevent private interests from producing oil from submerged lands along our coasts," he explained, "nothing was done in this matter other than to refer the correspondence to the legal section of the department to determine what interests, if any, the United States might have in such oil production.

"No cases were discovered wherein the courts had ever passed upon the question of ownership or title to minerals in the submerged lands below low tide and within the 3 mile limit of the United States or any of its possessions. The interior department had declared that the statutes relating to public lands did not give that department authority to issue mineral leases or permits below the line of high tide—that the submerged land strip, although it might be found mineral bearing, could not be construed as being public lands within the meaning of the statutes relating thereto and governing their disposal."

Tideland Jurisdiction

Accordingly, he said, Senator Nye (Rep., N. Dak.) introduced a bill in congress for the purpose of preventing the further depletion of the submerged lands and setting aside the oil deposits for the navy, and when called upon by him for an opinion, the judge advocate general of the navy held that "the government unquestionably had superior rights to such mineral as might be found in the submerged lands, but in the absence of any statute relating thereto or a declaration by congress citing the government's interests therein, the United States could not well interfere in a matter over which the states had assumed jurisdiction."

However, Stuart declared, "believing that the submerged lands off the California coast in the Pacific and off the coasts of Texas and Louisiana in the Gulf of Mexico probably would be found to contain oil deposits in addition to those already known, the navy department has given its full support to all proposed legislation which would enable it to secure such oil deposits as additional naval reserves."

At the same time, the department has

insisted that in such legislation all legal rights of others in such lands should be protected, he added, and that the controversial question as to whether minerals in submerged lands along our coasts are rightly the property of the federal government or the adjacent state should be determined by the courts.

California Conservation Vital

To considerable extent, Stuart disclosed, the navy looks to the California oil fields as a fuel supply for the Pacific fleet and possible important future actions in the Pacific oceans and, to that end, the department feels that conservation in California is even more important than in other areas.

"The importance of California oil in a region barren of other cheap natural fuels in connection with the state's commerce and industry as well as its necessity for the needs of the Pacific fleet cannot be too strongly stressed," he told the subcommittee. "It is therefore essential that this resource, abundant though it may appear to be at present, must be made to last as long as possible.

"The conservation of California's oil supplies is deemed by the navy department to be of paramount importance in connection with the defense of the country's western border, Alaska, and its Pacific ocean possessions. The navy must therefore continue to support all measures taken which have for their purpose the conservation of the state's oil and gas resources to the end that the life of the industry in the state will be of maximum duration."

"Should it be possible to reserve also for the navy whatever oil may be present in the submerged lands it is hoped that such a reserve would add another ten years' peace-time supply and make the naval petroleum reserves represent a possible 30 years' peace-time supply for the navy, a period estimated to cover the useful life of all ships now built or building.

"For this reason the navy department has supported and will continue to support all efforts to conserve for the navy the probable oil lands forming extensions under the sea of known oil fields and those probable oil-bearing lands which are entirely in the submerged lands along our coasts."

Under questioning by committee members, Stuart explained that while the navy has been "extremely anxious" to add to its reserves, it has no ambitions to acquire any territory except the underwater fields. Asked by Congressman Wolverton whether the submerged oil land legislation applied only to those waters where oil had been found or to all lands below the low-water mark, he pointed out that the Nye measure, as amended, and the companion Hobbs measure in the house referred only to California.

Regarding the increased needs of the navy in the event of war, Stuart said that oil supplies would have to be increased "five or six times." At present, he explained, about 9,000,000 barrels of oil are used annually, but this might be increased to as much as 50,000,000 barrels in the event of an emergency. Questioned by Chairman Cole as to whether private industry could not supply these additional needs, he explained that the navy is thinking in terms of the future, rather than of the present.

Asked for views of the department regarding exports and imports, Stuart pointed out he could not speak for the navy but that "personally," he favored stopping all exports and increasing imports. "But I don't think we can do it," he added frankly.

Concluding his testimony, Stuart volunteered that navy officials are anxious to discuss the provisions which would give control of production on government lands to the proposed administrator, with officials of the interior department to secure revision so as adequately to protect the naval deposits. He added that it is believed Secretary Ickes is in accord with the navy on this point and that a solution can probably be found for the question.

"I think you can depend on this committee not taking anything away from the navy department," Chairman Cole promised.

Army War Needs

Army consumption in the event of war probably would increase from its present level of around 1,500,000 barrels a year to 10,000,000 or 12,000,000 barrels, it was testified by Colonel Harry K. Rutherford, director of the war department's planning branch, who is concerned chiefly with industrial mobilization.

War Department consumption, Rutherford said, is approximately 20 percent of that of the Navy, but the two military organizations work together closely and Army chiefs support the views propounded for the Navy by Rear Admiral Stuart.

"The increasing mechanization of the Army leads to the belief that in the event of a major emergency consumption of petroleum and its products probably would be in the neighborhood of at least 15 percent above the normal consumption of the country.

Unit Operation Suggested

Unit operation "is the key to conservation" and if adopted generally would eliminate the need for proration, it was declared by Hale B. Soyster, chief geologist of the leasing division of the Geological Survey.

Testifying regarding the provisions of the leasing act and the operations of the Interior Department on public and Indian lands, Soyster declared that out of 275 oil fields surveyed by bureau engineers, 51—in California, Colorado, Louisiana, Montana, New Mexico, Oklahoma and Wyoming—were found to be operating in such manner as to involve waste in some form.

Thirteen of the 51 fields were cited because of the practices and methods of certain operators, the remainder because of practices of operators generally, he said.

"Some uniform conservation legislation of the type of the proposed legislation is not only desirable but binding if the cupidity and unscrupulous desires of some individuals and companies are to be subjugated to necessary and desirable action in the public interest," he declared.

"I do not see this as legislation taking anything away from the states, but as something that will complement what they have to support the states in the conservation activities that they consider desirable and necessary."

Any commissioner appointed under the bill, he predicted, would "cooperate fully" with the states.

Views of the National Resources Planning Board, submitted last month before the Temporary National Economic Committee, were repeated before the House group by Dr. Ralph J. Watkins, Dr. Glenn E. McLaughlin, both of the committee, and Ben E. Lindsly and E. G. Dahlgren of the Securities and Exchange Commission.

The group outlined the investigations, findings and recommendations of the National Resources Committee in its recent report to President Roosevelt on energy resources, which stressed the need for conservation, the necessity for unit operation and the desirability of eliminating the law of capture.

Under questioning by Representative Wolverton, Watkins admitted that his group had made no study of the legal problems involved in making effective the recommendations of the report, but pointed out that some changes already have been made in the rule of capture by proration laws and other developments.

The congressman questioned the witness at length on his statement that "only the Federal Government has jurisdiction commensurate with the scope of this problem," and asking him for citations from court decisions. Watkins replied that he had no such citations and was not a lawyer, but meant that he felt that since the oil problem was nationwide only the national government could deal with it.

Ickes Explains Purpose

Declaring that the purpose of the bill is not to supplant state authority, but admitting that in conflicts between the federal and state authorities "it is the intent" that the former shall prevail, Secretary of the Interior Harold L. Ickes on Friday told the subcommittee that only under federal supervision can a uniform pattern of conservation be applied throughout the country.

Outlining the history of the conservation effort from its inception in 1878 in the Pennsylvania law requiring the plugging of abandoned wells, Ickes contended that, from the standpoint of waste prevention, the state laws are ineffective and that the states are reluctant to adopt any statutes so long as they have flush production, as in California, Illinois and, probably, Nebraska.

The secretary took as his text the defeat of the Atkinson bill in California which, he said, "is pretty good notice that we cannot expect much from the second largest oil producing state in the country acting on its own volition."

"I favor strongly the continuance of oil and gas conservation laws in the states which have enacted them and their adoption by the states which do not have them," he told the committee. "It would be a serious mistake even to suggest that they be set aside, with the complete loss of all which has been accomplished during the past few years."

On the other hand, he said, in contrast with the several purposes of the state laws, the federal bill "is designed solely to conserve petroleum and to provide for cooperation with the states in preventing its waste."

"It does not authorize the federal government to limit, on the basis of

demand, the oil production of the United States, or of any state, field or well," Ickes explained.

"It does not permit the federal government to prevent or correct discriminations among property or royalty owners or producers within a single pool or between different pools within a state which may arise in the allocation of production among fields and wells by the state authority, nor does it provide that the federal government should regulate refining or marketing practices. It does not narrow or limit the existing state authority to do these things nor does it prescribe that any state should exercise its authority in this respect.

Asserting that the measure is designed to "encourage and assist" the states in the prevention of waste, and that its regulatory provisions would apply only where investigation proved there was waste, the secretary insisted that the "need for its enactment would be no less urgent than it is now if all the states, which do not have oil and gas conservation laws, should enact them."

"In the main," he went on, "the bill deals with the definition, investigation, determination, prevention and correction of waste in oil production. These provisions of the bill, in my opinion, do not deprive oil producers of any right which they have now, other than the right, if it can be so regarded, to produce oil wastefully. The bill so prescribes the factors of waste that any oil producer may review his own operations and, within the reasonable limits of differences in engineering opinion, determine for himself whether or not his operations conform with the standards set forth in the measure. The several producers within a single pool may do likewise and agree voluntarily to a plan of operation for the field. When producers, singly or jointly, do not do this and their operations, upon investigation, are found to be wasteful within the meaning of the bill, full opportunity is provided for hearings, within the federal judicial district in which the field is located, before regulations may be issued under the bill."

Additional Control Needed

"In recommending the enactment of this bill I am mindful of the progress in oil conservation which has been made during the past decade but I am also aware that much has not been done, the doing of which is necessary," he declared. "I know that a number of states have joined a compact which has the principal purpose of preventing physical waste in oil and gas production but I am aware of no specific recommendation or action on its part to prevent such physical waste. I would greatly prefer to be able to come before your committee and say that the state authorities and the oil producers were doing a complete job of preventing waste and that there was no need for further concern as to the protection and adequacy of our oil supply, in terms of emergency needs or of normal civilian requirements. I regret that I cannot give you that assurance and that I must stress the need for legislation which will assure adequate protection against avoidable waste of the oil resources of our nation."

Most of the federal administration's work, he confessed, would have to be confined to new areas, but much can be done by conservation to preserve the values even of older fields, he argued.

"It is obvious that Spindle Top, Santa Fe Springs, Wilmington and other closely spaced fields cannot now be re-drilled with a more efficient spacing pattern and that regulations cannot stop the flow of gas where there is no mechanical means of doing so," he commented. "Waste which cannot be prevented or corrected is not avoidable waste and does not come under the bill. However, if this bill is enacted, coordinated action of state and federal agencies will certainly contribute to the prevention of such occurrences in the future.

"It has been indicated that some wasteful practices may be found in all of the oil fields of the United States and that all industrial processes, including the production of oil, must be accomplished by some degree of waste. From this, it has been implied that, in the administration of this measure, there would be a federal agent in each oil field of the United States and that federal engineers would be scurrying around the countryside looking for opportunities to point a finger of guilt at minor and unimportant instances of waste. If the bill is enacted and if I have any connection with its administration, I assure you that there will be no such running around to disturb and annoy and that action to prevent waste will be taken only in those instances where the facts are beyond engineering dispute and where there is a deliberate unwillingness to correct them.

The purpose of the bill, he repeated, "is not to supplant state authority with federal authority. Instances might arise in which there would be elements of conflict between these authorities and, if the matter should reach a point where determination were necessary, it is the intent of this bill that the federal authority would prevail. It is my opinion, however, that such instances of conflict would be infrequent even at the start and more so as the provisions for coordination became effective.

"In most instances, the provisions of this bill would be exercised in situations where the state authority had not been applied or where its application was being withheld because of pressures or circumstances beyond the control of those in immediate charge of the state laws.

"In instances where state orders will have been issued but investigations under this bill would show that they are ineffective in preventing avoidable physical waste as defined, it would be necessary to have definite proof of that fact. Such proof would have to come after, and not before, the state order had been applied and ordinarily would be sufficient to convince the oil producers and the state authority of the need for modification of the orders of the latter.

The secretary informed the subcommittee that a brief supporting the constitutionality of the legislation would be submitted by the solicitor for the interior department, leading Chairman Cole to express the hope that it would include a discussion of whether there is a warranted delegation of power in the measure and whether waste is adequately defined therein.

The chairman expressed some doubt as to the adequacy of the definition, regarding which he had closely questioned previous witnesses, and suggested that it should be drawn so tightly as to leave no question as to the field in which the administrator might operate.

Is Questioned Closely

Representative Cole also asked Secretary Ickes how the administrator would act with respect to the Illinois situation if the bill were enacted.

"In the absence of reasonable regulation by the state, the government could go in and do what the state failed to do," the latter replied.

The chairman also pointed out that the conservation states apparently are attempting to follow the Bureau of Mines forecasts and commented that two Texas officials this month sought to have their allowable increased, rather than exceed the limitations of the government's findings.

"If we do that for Texas we will have to do the same thing proportionally for the other states," Ickes pointed out.

"So that this bill does not seek to control and, in your opinion, does not control the cooperative system that is now in effect between the federal agencies and the state regulatory bodies," the Congressman insisted.

"No, it would be merely further and more intelligent cooperation."

"But it doesn't seek in any way to fix the amount of production?"

"Only the limitation I have already stated."

"The bill then only seeks to deal with waste below ground?"

"Waste of any sort," Ickes replied. "At present there is not much above ground waste; but if there should be, it would cover that, too."

Wolverton pointed out that opposition to the bill is not confined to the industry but has been voiced by state officials.

"Is there justification for the criticism that is made that this bill would place the federal government in control of this particular subject instead of the state regulatory bodies?" he asked.

"I do not think so," the secretary said.

In response to the Congressman's questions, Ickes asserted that the federal agency would have no authority to require unit operation of privately owned lands, but Wolverton insisted that if it could regulate the operations of an individual well owner there is no bar to assumption of jurisdiction over several owners. Ickes, however, contended that the federal government would have no right to impose a contractual arrangement upon a private individual.

"The question is just how far the government can go," Wolverton explained. "This is an advance step over any legislation that we have taken, and assuming that it is necessary, can we do it as a federal body?"

The Congressman also asked whether it would not be possible to incorporate necessary provisions of the bill in the Connally Act and thus attack the problem on a cooperative basis.

"I am not prepared to answer that question," the secretary said. "It might be possible."

Numerous Geological Problems Studied at Pacific Coast Meeting

ATTENDED by one of the largest groups on record, the 16th annual meeting of the Pacific Section of American Association of Petroleum Geologists held a two-day session last Thursday and Friday at the Ambassador Hotel, during which 12 technical papers were presented.

Starting off with an address on "Continuing Exploration," by Henry A. Ley, national president of the A. A. P. G., the program of events included a wide variety of interesting topics relating to research program of the association, geochemical prospecting, Arabian geology and topography, interpretation of core analysis, and other papers, including an informal symposium on recent petroleum discoveries in California embracing eight oil fields.

In addition to the convention of the A. A. P. G., a gathering of members of the Pacific Section of the Society of Economic Paleontologists and Mineralogists was held at the Clark Hotel Thursday evening. Besides electing next year's officers, the members heard a paper entitled "Some Foraminiferal Correlations in the Eocene of San Joaquin Valley, California," by Boris Laiming, of The Texas Company.

Abstracts of most of the papers presented at the sessions follow:

Geochemical Prospecting

By E. E. ROSAIRE,
Subterrex.

Geochemical prospecting can be divided into surface and subsurface geochemical prospecting. The former relies upon the analyses of soil samples collected along the surface of the earth at shallow depths, and yields two dimensional information and maps. Surface geochemical anomalies are associated with the presence and areal extent, but not the depth nor the relief, or favorable structure. Surface geochemical prospecting is further divided into topsoil geochemical prospecting. Subsurface geochemical prospecting relies upon the analyses of well cuttings and cores.

Facies Changes in Upper Miocene of San Joaquin Valley

By PAUL P. GOUDKOFF,
Consultant.

The paper dealt with the Delmontian Upper Mohnian Strata of the San San Joaquin Valley, which are well known for their extreme lithological variations, on the basis of lithological and paleontological studies of material obtained from 150 wells and several surface sections. The whole column was divided into a number of units representing definite time divisions. An attempt was made to define the principal types of micro-faunal assemblages found in different parts of each unit, to appraise the ecological significance of these types and to survey their distribution in relation to lithological variations of the sediments of each unit.

Pliocene of the San Joaquin Valley

By W. F. BARBAT,
Standard Oil Co.

The Pliocene of the San Joaquin Valley was defined and a description given of the sediments and the invertebrate fauna. Attention was called to diastrophic history, the geologic occurence of land vertebrates, and to the physical conditions under which the sediments were deposited.

Some Foraminiferal Correlations in the Eocene of San Joaquin

By BORIS LAIMING,
The Texas Company.

In this paper the author presented evidence to prove the value of the smaller foraminifera as a basis for correlating Eocene strata in California. A study of foraminiferal sequences in a number of sections taken from widely separated areas showed that the general order of superposition of microfaunal assemblages remains constant, even in the presence of variable lithologic conditions. Charts were presented indicating the position and correlation of foraminiferal zones and formations in various surface and subsurface sections of the Eocene in San Joaquin Valley. Comparison was also made with Eocene formations in other localities.

Interpretation of Core Analyses

By FRANK HORNKOHL,
Consultant.

Permeability is a measure of the fluid passing ability of a porous material. Porosity is a measure of the void space in the sand that can be occupied by a fluid. Water saturation of a sand is the total amount of water in percent present in the void space in the porous material. This includes the connate water, drilling fluid, and actual water present. The larger the diameter of the core sample, the more accurate the determination. Oil saturation is only of comparative value, because in deep samples of light gravity oils, only the residual oil is present, the other lost because of temperature and pressure conditions present.

Comparative Columnar Sections of Domengine-Arroyo Hondo Sandstone Intervals Between Cantua Creek and Waltham Canyon in Coalinga District

By J. Q. ANDERSON,
Union Oil Company.

This was a presentation of a series of slides showing 13 hand leveled surface columnar sections of the Domengine-Arroyo Hondo sandstone intervals measured at varying distances between Cantua Creek and Waltham Canyon. Correlation of all sections was based on "Black Pebble Bed" or Domengine Reef. Discussion involved demonstration of lateral variation and facies changes in lithology of both intervals.

An Eocene Section at Point of Rocks, Kern County

By HARRY B. ALLEN,
Student, University of California.
(L. A.)

The sedimentary sequence and formational age of the Eocene rocks in northwestern Kern County have been the subjects of controversy. The results of recent field and paleontological work, conducted in an attempt to clarify the problem was presented in this paper.

Problems of Sediment Transportation Off the Coast of California

By ROGER REVELLE,
Scripps Institution of Oceanography.

Several kinds of evidence obtained in recent investigations suggest that water movements of sufficient strength to move sand grains over the bottom may exist at least occasionally at all depths in the open sea. Sediments are absent from topographic highs rising one or two hundred fathoms above the general level of the sea floor even at depths of two miles or more. Thin layers of well-sorted fine sand intercalated with thicker layers of clayey muds are characteristic of inshore basins off Southern California at depths of over half a mile at distance of 30 or more miles from land. Current velocities of nearly one-half knot were measured within two feet of the bottom at 1100 fathoms in the Santa Cruz Basin south of Santa Cruz Island, 500 fathoms below the sill or threshold of the basin. Other similar measurements show that the strongest bottom currents shift irregularly in both speed and direction.

Geological Observations in Italian East Africa

By FRANCIS D. BODE,
California Institute of Technology.

Topographically and geologically, Italian East Africa can be divided into three principal areas: (1) the "Ethiopian Plateau," which occupies the northwestern third of the country; (2) the "Rift Valley Depression," which divides the entire country in two; (3) the "Somaliland Plateau," the country lying to the south and east of the Rift Valley. The Ethiopian Plateau consists of a series of table lands, often of great elevation, with ranges of high and rugged mountains dispersed across its surface in rugged confusion. The Rift Valley Depression is a long, and generally narrow trough which trends in a northeasterly direction across the country from the southwest corner of Abyssinia to near the junction of the Red Sea and the Gulf of Aden. The Somaliland Plateau is a great area of monotonous relief which slopes very gradually, from elevations near 5000 feet along the Rift Valley and the Gulf of Aden southeastward to the Indian Ocean.

MEN IN THE INDUSTRY'S NEWS

CONTINENTAL OIL COMPANY ANNOUNCES ESTABLISHMENT OF NEW DIVISIONS AND PROMOTIONS OF EMPLOYEES

OIL PIPE LINE AND OIL TRADING DIVISIONS ARE ORGANIZED

CONTINENTAL Oil Company has established an oil pipe line and terminal division and an oil trading division, which has resulted in promotion of several employees, according to J. G. Dyer, vice president in charge of production and drilling.

A. C. Wilkinson, for the past seven years superintendent of the Oklahoma-Kansas division, has been appointed general superintendent of the newly established oil pipe line and terminal division, with headquarters in Ponca City, Oklahoma. Wilkinson joined Continental's pipe line department in 1924.

T. A. van Griethuysen will be superintendent of the new oil trading division, handling the company's activities in purchasing and selling crude oil. Van Griethuysen joined the company in 1929, shortly after his graduation from the University of Oklahoma, and has been associated with the production department since 1925.

Ira D. Pierson, formerly Montana production district superintendent, has been named assistant general superintendent at Denver, Colorado, in the office of J. C. Johnston, general superintendent. Establishment of a Colorado production district was announced, to be supervised by H. C. Rankin, who will be transferred from Shiprock, New Mexico, to Denver. George Cox, former district superintendent at Florence, Colorado, will replace Rankin at Shiprock.

J. C. Thomas has been appointed superintendent of the Montana district with headquarters in Billings.

W. C. Rice, formerly superintendent of the eastern Wyoming district, has been made superintendent in charge of operations in the entire state.

ALEXANDER FRASER, president of Shell Oil Company, Inc., accompanied a group of 150 St. Louis business men on a tour of the Illinois Basin fields last week. Joining the party when it reached Centralia were E. G. Robinson, eastern division manager for Shell; Arnold C. Dahl, production manager for Shell; Hiram Norcross, assistant manager for Shell, all of Centralia; Ralph Damp, Carter Oil Company, Mattoon, and William C. Kneale, eastern division manager for The Texas Company, Salem.

HERBERT H. GREENFIELD, former premier of Alberta and vice president of Calmont Oils, Ltd., was reelected president of the Alberta Petroleum Association when the organization held its annual meeting last week. F. M. Graham, president of Sunset Oils, Ltd., was re-elected vice president, and E. W. Kolb was reappointed secretary.

A. C. WILKINSON

New members of the board of directors are: W. H. Brown, production manager of Gas & Oil Products, Ltd.; R. W. Ward, vice president of Okalta Oils, Ltd.; J. G. Spratt, managing director of Anglo-Canadian Oil Company, Ltd., and B. L. Thorne, of the mines department of Canadian Pacific Railway. Reelected were: G. E. Watt, production manager of British American Oil Company, Ltd.; R. A. Brown, Sr., president of Brown Oil Corporation, Ltd.; and J. H. McLeod, president of Royalite Oil Company, Ltd.

PAUL OSBORNE, Tide Water Associated Oil Company, was elected president of the Western Kentucky Geological Society when geologists and petroleum engineers met in Evansville last week to reorganize the society. Also elected were E. W. Hard, Sun Oil Company, vice president, and W. Keith Miller, secretary-treasurer.

JAMES TERRY DUCE, vice president of The Texas Company, returned to New York November 4 from Colombia, where he inspected properties of Colombian Petroleum Company and South American Gulf Oil Company. Duce was accompanied on the trip by Fred Sealy, production department executive of The Texas Company in New York.

HERBERT HOOVER, JR., president of United Geophysical Company of California, was a recent Houston business visitor. Accompanying him was H. C. Schaeffer, also with United Geophysical Company.

DR. ROBERT E. WILSON, president of Pan American Petroleum & Transport Company, was presented the Chemical Industry Medal for 1939 at a joint meeting of the American Section of the Society of Chemical Industry, the New York Section of the American Chemical Society and the New York Section of the American Institute of Chemical Engineers held in New York November 10.

ROBERT S. KERR, Oklahoma City, was re-elected president of the Kansas-Oklahoma Division of the Mid-Continent Oil & Gas Association for 1940 at a meeting held in Tulsa on November 3.

Other officers re-elected included Frank O. Prior, Stanolind Oil and Gas Company, first vice president; T. C. Johnson, Wichita, Kansas, vice president for Western Kansas; Carl Weiner, Chanute, Kansas, vice president for Eastern Kansas; A. W. Ambrose, Cities Service Oil Company, vice president for Northern Oklahoma; Lloyd Noble, Noble Drilling Company, vice president for Southern Oklahoma; W. R. Wallace, Magnolia Petroleum Company, vice president for Western Oklahoma; and Clarel B. Mapes, Mid-Continent Oil & Gas Association, secretary-treasurer.

W. D. PRICE, Mene Grande Oil Company, Venezuela, claims for his new daughter, born October 31, the distinction of being the twenty thousandth baby born in Memorial hospital, Houston. Her name is Penelope Ellen.

T. D. GRESHAM, formerly vice president and general counsel of The Texas and Pacific Railway, announces the opening of offices for the general practice of law in the Kirby Building, Dallas.

R. D. ROBEY, JR., president Robey Drilling Company, Tulsa, is the father of a baby boy born November 6.

CLAY TALLMAN, Tulsa attorney, November 3 was given a certificate of life membership by Mid-Continent Oil & Gas Association.

IONEL I. GARDESCU, consulting geologist and petroleum engineer of Houston, and Carleton Speed, Jr., president of Speed Oil Company and vice president of the Houston Geological Society, are principals in the new consulting firm of Gardescu-Speed, Second National Bank Building, Houston.

Gardescu, who has been touring Europe, sailed from Holland October 15, arriving in New York October 28 after having ridden through the tail end of the storm that almost wrecked the President Harding.

C. A. "REINE" REINHARD, who has staged a recovery after an illness of nearly a year, has moved from Los Angeles to Houston.

A. F. MOORE, of Monticello, Illinois, has moved to San Antonio and has opened offices in the Milam Building. He has been joined by Henderson Coquat and C. L. Ross in forming the Moore Development Company. Moore is president, Ross is secretary and Coquat is vice president and treasurer. Coquat is to retain the headquarters for his concern in Three Rivers where they have been

maintained for a number of years. These include Longhorn Drilling Company, Simmons Oil Company, Live Oak Gas Company and Three Rivers Refinery.

CLIFF DIRKS, with Dirks Brothers, independent producers of Tuleta, Texas, has returned from a Canadian hunting trip.

GEORGE B. WHITE, of The Whitex Company, flew from San Antonio to Mexico City last week. He has been wintering in San Antonio, having come from Boston, Massachusetts.

HARRY H. MACK, general superintendent for Sunray Oil Company of Tulsa, was a visitor at Corpus Christi. The company is reported to be negotiating for several properties in this area.

JOHN F. CAMP, drilling contractor, is back in San Antonio after an extended stay in New York.

W. P. DICKSON, accountant in the Texas Railroad Commission's Midland district office, has resigned to become chief clerk for Aloco Oil Company's Wasson field production office.

HARRY ADAMS, West Texas producer, returned to his Midland headquarters last mid-week after undergoing an operation at Rochester, Minnesota.

DR. L. W. BLAU, of Humble Oil & Refining Company, presided at an oil production session at the technical meeting of the American Institute of Physics last week in New York.

FRED C. McDANIEL, chief clerk in the land department of Gulf Oil Corporation at Houston, died November 5 of gunshot wounds incurred when he knocked over a shotgun when reaching into a closet at his home.

O. H. CARLISLE, division manager of Gulf Oil Corporation at Houston, has been appointed chairman of an advisory committee formed to foster interest in the National Flower and Garden Show, to be held in Houston early in 1940.

A. G. SPOONER, Calgary, was reelected president and managing director of Spooner Oils, Ltd., when shareholders of the Alberta producing company held their annual meeting in Calgary last week. Also named were T. W. McKee, vice president; R. G. Spooner, secretary-treasurer, and A. W. Maguire and C. E. Snyder, directors.

J. M. PRITCHARD, vice president, and A. F. Campo, general sales manager of McColl-Frontenac Oil Company, Ltd., were in Alberta last week in connection with transfer of properties of The Texas Company of Canada, Ltd., to McColl-Frontenac, announced early this month.

H. L. FRANCIS, scout for Carter Oil Company, formerly working out of St. Joseph, Missouri, has been transferred to Jackson, Mississippi.

L. B. O'NEIL of Cut Bank was elected to the chairmanship of the Oil Conservation Board of Montana at a meeting held in Cut Bank on October 30. The board chose W. E. Rice, vice chairman, and R. P. Jackson, secretary. Other members are Wilfred F. Nadeau, George R. Downs, and Tom Stout. Governor Ayres appointed all of the above, except Jackson, to serve until January 8, 1940.

JOHN H. WINEMILLER, 58, president, William Penn Oil Company, Tulsa, died Saturday, November 4.

DIED:

MURRAY M. DOAN, 74, pioneer oil man and authority on oil properties, died November 5 at his Tulsa, Oklahoma, home. Doan, a native of Chesterhill, Ohio, went to Texas in 1900 and, with the savings of five years, invested in the Spindle Top field. As a scout for Sun Oil Company Doan lived in Beaumont till 1912, when he moved to Tulsa to manage the office of Gulf Refining Company. After success in that capacity Doan was transferred to Pittsburgh, where he left Gulf to return to Tulsa and the general manager of Phillips Petroleum Company. This position he held until after the World War, when he became an independent operator. Doan was a director of Sunray Oil Company and of the First National Bank of Tulsa at the time of his death. Formerly he had been a director of Skelly Oil Company and of Amerada Petroleum Corporation.

E. J. DUNIGAN, SR., 76, vice president of Dunigan Tool & Supply Company, owner of oil field supply stores in Texas for many years, died November 2 of a heart attack at Breckenridge, where he resided. Survivors include 3 sons, James B. Dunigan, Fort Worth; E. J. Dunigan, Jr., Pampa; and F. A. Dunigan, Breckenridge, all being identified with the company.

O. R. JEFFRIES, 45, an official of Jeffries Oil Company, Midland, Texas, was killed November 5 by a gun fired accidentally while hunting in New Mexico.

PIPE LINE NEWS

Plan 450-mile gasoline line in southeast U. S.

Plans for a 450-mile gasoline pipe line from Port St. Joe, on the Florida gulf coast, to Atlanta, Georgia, were revealed last week with announcement that an order for between 23,000 and 25,000 tons of seamless pipe has been placed for the project by Gulf Oil Corporation. The order calls for 8⅝-inch and 6⅝-inch pipe. It will be the first large gasoline line in the southeastern states, at present there being no gasoline lines south of Pennsylvania and the Ohio river and east of Louisiana.

The line will permit movement of gasoline brought to Port St. Joe by tanker to the Atlanta market for distribution. The Florida port is almost due south of Atlanta.

Wyoming-Spokane line survey completed; said feasible

Surveys have been completed for a proposed pipe line to Spokane, Washington, from the Cut Bank field, Wyoming, and engineers have pronounced the project "feasible." The line, which would serve the plant of Inland Empire Refineries at Spokane, would be 313 miles in length and would cost between $2,500,000 and $3,000,000, it is estimated. Capacity would be approximately 6000 barrels daily. Officials of the refining firm are considering details of the proposition and a definite announcement concerning the line may be expected in the near future.

20-mile line will take Michigan gas plant residue

The Pent-Hex Corporation, affiliated with West Michigan Consumers Company of Muskegon, has announced a $200,000 casing head gas absorption plant and 20-mile pipe line program for the Walker field, Kent County, Michigan Construction on both projects is scheduled to start this month.

Plans call for construction of an absorption plant in the Walker field and construction of an 8-inch pipe line from the plant west to the Ravenna gas field, where the line will be tied into West Michigan Consumer's 4-inch line from Ravenna to Muskegon. The line will carry residue gas.

John W. Robinson, president of both corporations, said the absorption plant would be constructed to handle between 12 and 15 million feet of gas daily.

Seventy-mile Illinois line is finished

Construction work on Sohio Corporation's 70-mile 10-inch crude oil pipe line from the Salem pool of Marion County, Illinois, to Stoy, Illinois, was completed last week by Williams Brothers Construction Company. The line links the field, which is the state's most prolific producing area, with the Tide Water line recently acquired by Sohio to furnish an outlet to its Ohio refineries. A little more than a month was required to build the line.

St. Louis to Chicago gasoline line finished

Phillips Petroleum Company has placed in operation its new gasoline pipe line from East St. Louis to Chicago, which is an extension of its line running from Borger, Texas, to East St. Louis. The line, which has a present capacity of 20,000 barrels daily, can be increased to 35,000 barrels a day by installation of additional pumping stations.

The new carrier takes care of the company's trade in the central area of the United States, and replaces the former method of shipment around the Great Lakes.

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Strong crude markets promise higher prices

The crude oil markets throughout the United States have continued remarkably strong, and indications point persistently to the possibility that postings may be advanced generally in the near future.

Although some districts of the Mid-Continent already have had moderate crude price increases, a general upward revision would not be surprising, in view of the present tightness of the market.

The prospect of higher postings would be particularly good if strict curtailment of production should be continued into the winter and if refinery runs should be held within economic limits. Although runs reached a new high in the week ended October 21, they were materially curbed in the week of October 28 and further cut down in the week ended November 4, giving hope that a moderate course may be pursued by refiners.

Corning Crude Raised

Following the 25 and 15 cent increases in Pennsylvania grade crude within the past several weeks, Corning grade crude (Ohio) has been advanced 10 cents a barrel, further reflecting the firmness of the crude markets. South Penn Oil Company on November 4 advanced the Corning posting from $1.02 to $1.12 a barrel. That was the first change for Corning grade since January 12, this year, when the posting was raised to $1.02 from 92 cents.

Strength in Mid-Continent

Aggressive solicitation by crude purchasers and pipe line companies for extra supplies of all grades of oil in the Southwestern states is confusing operators who have their own pet methods of projecting the trends of their markets. Activities of oil buyers since termination of the production holiday in August and the launching of the new European war have provided ample grounds for producers to anticipate an early advance in price postings. In contrast, the statistical record of the domestic gasoline situation and the absence of a boom in foreign deliveries of petroleum products tends to curb the optimistic viewpoint.

Certainly, the crude market has been stripped of its bearish element. The owners of crude production and stocks are catered to on a basis that has not been equalled in more than a decade. Pipe line outlets for isolated areas and less desirable grades of crude have been made available to operators that had abandoned hopes of procuring such relief.

Premiums in East Texas

The East Texas field, pace maker for all high gravity oil areas in its market territory, has reached the premium stage on spot sales of tanker lots. All purchasers are guarding their connections. The majority of the large buyers have engaged crude solicitors, who are devoting their efforts to the switching of well connections. The highest premium recorded to date involved tanker lot sales at $1.36 per barrel for ship. This represents 7 cents bonus, as the field posting is $1.10 and the fixed tariffs amount to 19 cents. Independent pipe line units no longer have difficulty in making contracts for their runs at posted plus five cents gathering and handling fee. Longview Gathering Systems has booked a 12-month contract to sell its runs amounting to 15,000 barrels monthly to Shell Oil Company on these terms.

The Italian government has resumed active buying of crude for its controlled refineries. An order for East Texas crude could not be filled, and Rodessa oil was substituted. The bulk of the production of this field is controlled by companies that will not entertain spot sales contracts.

Similar conditions prevail at Conroe, largest of the Gulf Coast fields. One independent buyer has contracted runs for the next 2 years.

North Texas Benefits

North Texas has enjoyed a full share of the stimulated market, resulting in the revival of competition for the first time in years. This district also registered its first spot sale of crude to a Gulf Coast refinery since the advent of the East Texas field. The deal involved the purchase of 100,000 barrels of storage oil from Continental Oil Company by the Crown Central Petroleum Corporation. Deliveries will be made through the facilities of the Texas Pipe Line Company. All important pools in the district have been provided with pipe line connections in recent weeks.

Texas Panhandle is enjoying its share of the sellers' market, with the greatest support coming from Phillips Petroleum Company's huge Borger refinery. The latter company has been periodically buying batches of storage oil accumulated during off-season period by majors, in order to meet expanding needs.

West Texas and Southeastern New Mexico crudes have been restored to a competitive basis. Stocks on hand are moving out at a large rate, in the face of short production weeks in the former. All important producing areas expect the Seminole (West Texas) field to have pipe line connections. The only dark cloud on the horizon in West Texas is the threat of excessive drilling in the Wasson-Bennett district making it necessary for pipe lines to apply proration of their runs after the first of the year, due to transportation restrictions.

REFINED PRICES

REFINED GASOLINE

Oklahoma Refineries:	Range Last Week (Cents a gal.)		Changes from Week Before	
62 Octane and Under	4 ½	4 ¾	...	...
63-66 Octane	4 ¾	5	...	...
67-69 Octane	4 ¾	5 ¼	...	...
70-72 Octane	5 ¼	5 ½	...	...
Mid-Western Tank Car:				
62 Octane and Under	4 ¼	4 ¾	...	...
63-66 Octane	4 ⅜	4 ¾	+⅛	...
67-69 Octane	4 ½	5 ⅛	...	...
70-72 Octane	4 ¾	5 ⅜	...	...

NATURAL GASOLINE

Grade 26-70:				
F. O. B. Group 3	4 ¼		...	
F. O. B. Breckenridge, Texas	4		...	

KEROSENE

Oklahoma Refineries:				
41-43 water white	3 ½	4 ¼	...	...
42-44 water white	3 ⅝	4 ⅝	...	...
Mid-Western Tank Car:				
41-43 water white	3 ½	4	...	...
42-44 water white	3 ⅝	4 ¼	...	...

FUEL OILS

Mid-Western Tank Car:				
Range Oil	3 ⅜	3 ⅞	...	...
No. 1 Prime White	3 ⅜	3 ¾	...	...
No. 1 Straw	3 ¼	3 ⅜	...	...
No. 2 Straw	3 ⅛	3 ¼	...	...
No. 3 Straw	3	3 ⅛	...	...
No. 5 (per bbl.)	65		...	...
No. 6 (per bbl.)	45		...	...

Western Ontario crude oil prices increased

Prices of Western Ontario crude oil were advanced 20 cents a barrel, effective November 6, by Imperial Oil, Limited, of Toronto.

The new prices are $2.10 a barrel for Petrolia crude and $2.17 for Oil Springs crude.

Markets for refined oils continue firm

The past week brought continued firmness of the markets for refined products, although prices remained mostly unchanged.

Particularly strong were the heating oils, on which prices were marked up by some refiners and by some resellers in the Middle Western marketing territory. Supplies were closely held, and some plant owners were limiting quotations to regular customers.

Lubricating oils also continued to feature the markets with exceptional strength. Supplies were relatively scarce, and demand for exporting remained good. Bright stocks and neutral oils were in active demand in the Mid-Continent as well as in Western Pennsylvania.

The heavy fuel oils also remain in good demand, with prices steady at somewhat improved levels.

The gasoline market continued the least vigorous of all the refined oil markets, but prices were holding to established levels in most instances, although a few refiners marked their quotations down slightly. The market apparently reflects some concern over the relatively large inventory of gasoline now on hand. However, some encouragement was offered by a slight pick-up in exports from the Gulf Coast.

Inventory situation is generally satisfactory

Inventories of refined products showed further unfavorable trends in the week of the industry's latest statistics, that is, the seven days ended November 4;

but offsetting undesirable additions to stocks was a further material curtailment of refinery runs, while crude oil production continued well within market demand. The week proved, therefore, generally satisfactory from a statistical standpoint.

Crude oil output, having averaged 3,501,350 barrels daily, was up very slightly from the previous week but was according to the American Petroleum Institute, approximately 120,000 barrels a day lower than the average daily market demand for November, as estimated by the Bureau of Mines. The production was 3.5 percent smaller than that in the corresponding week of last year.

Refinery Runs Curtailed

Refinery runs were curtailed materially a second consecutive week, having been cut 55,000 barrels daily to 3,465,000 barrels a day. The second preceding week had been the most active in the history of the industry, runs having hit an all-time peak of 3,650,000 barrels a day in the week ended October 21. The latest week's figure was, nevertheless, 9.7 percent greater than that for the corresponding week last year.

The considerable curtailment of crude runs to stills resulted in a reduction of gasoline production by 50,000 barrels a day. The refinery output of the country in the week of November 4 totaled 11,880,000 barrels, or 1,697,000 barrels daily, compared with 12,232,000 barrels, or 1,747,000 daily in the previous week.

Gasoline Stocks Rise

Despite the curtailment of plant output, however, gasoline stocks continued to accumulate, demand having been inadequate to absorb all of the product that was being turned out. Gasoline stocks have been increasing contraseasonally since early October. Usually, the fall-winter build up of inventories does not commence until around the middle of November.

The increase in gasoline storage for the nation in the week ended November 4 amounted to 602,000 barrels, having been from 72,660,000 to 73,262,000 barrels. Following the increase, the stocks were 7.4 percent greater than at the corresponding time last year. That year-to-year gain is not justified, despite the fact gasoline demand has been running about 5 percent higher this year than last year, as the stocks a year ago were seriously excessive. These figures indicate that the inventory is about as much out of line now as at this time last year.

Heating Oil Stocks Cut

Whereas the industry usually continues to increase stocks of heating oils through November, for taking care of winter demand, a course that would have been especially desirable this year, an enlargement of the inventory was not achieved in the week ended November 4, as demand continued exceptionally great. The stocks of gas oil and distillate fuels were drawn upon, instead, to the extent of about 100,000 barrels, having been reduced to 39,460,000 from 39,562,000 barrels. The present inventory is 6.6 percent smaller than that held a year ago, despite the fact that demand is more than 10 percent higher. This strong demand for heating oils, although gratifying, complicates the problem of properly holding down gasoline stocks, as it tends to promote refinery runs so large as to cause overproduction of gasoline.

Heavy Oil Stocks Up

Although the industry had been having some difficulty in keeping production of industrial fuel oils abreast of demand, because of booming production in most industries, the plant output of those oils in the week ended November 4 permitted some building up of the inventories. The stocks of residual fuel oil in the United States were increased from 114,786,000 to 115,036,000 barrels. That supply is generally satisfactory. It is 8.5 percent smaller

Illinois' twenty-fourth independent refinery built

Transport Oil & Refining Company last week completed construction of its 1500-barrel skimming plant south of Dupo, St. Clair County, in southwestern Illinois. It is the twenty-fourth small independent refinery to be placed in operation in the past two years to utilize southern Illinois crude. It is adjacent to the Plank Road oil pool.

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Nov.)	State Allowable in Nov.	BARRELS DAILY FOR WEEK ENDED Nov. 11	Nov. 4
TEXAS—				
Texas Panhandle			73,400	69,250
North Texas			91,950	75,950
West Central Texas			34,050	26,950
West Texas			263,400	211,350
East Central Texas			90,700	83,300
East Texas Field			496,950	396,250
South Texas			234,350	197,100
Texas Gulf Coast			247,200	204,250
Total Texas	1,444,000	1,396,225*	1,532,000	1,264,200
CALIFORNIA—				
Long Beach			44,900	45,100
Santa Fe Springs			27,500	26,200
Huntington Beach			28,600	27,300
Dominguez			18,700	16,200
Ventura Avenue			34,500	34,900
Midway-Sunset			46,300	43,300
Kettleman Hills			50,500	51,700
Wilmington			85,900	85,700
Others			290,000	271,900
Total California	596,000	599,000†	626,900	602,300
OKLAHOMA—				
Oklahoma City			105,900	87,725
Seminole Area			102,875	99,795
Fitts			22,725	21,500
Others			197,975	206,555
Total Oklahoma	429,000	429,000	429,475	415,125
LOUISIANA—				
North Louisiana			65,825	65,000
South Louisiana			205,150	197,300
Total Louisiana	259,000	258,994	270,975	262,300

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Nov.)	State Allowable in Nov.	BARRELS DAILY FOR WEEK ENDED Nov. 11	Nov. 4
ILLINOIS—				
New Pools			323,500	335,300
Old Pools			8,700	8,800
Total Illinois	303,000		331,200	344,100
KANSAS—				
Burrton-Haven			10,875	10,425
Russell County			24,175	25,500
Silica			9,950	13,575
Others			119,900	123,750
Total Kansas	169,000	170,600	164,900	173,250
NEW MEXICO	111,000	111,000	114,550	112,350
EASTERN STATES—				
Pennsylvania Grade			77,450	77,600
Others Eastern			27,050	26,100
Total Eastern States	106,000		104,500	103,700
MOUNTAIN STATES—				
Wyoming	63,000		59,350	63,500
Montana	16,000		17,100	17,100
Colorado	4,000		3,600	3,950
Total Mountain States	83,000		80,050	84,550
MICHIGAN	63,000	71,000	63,650	63,500
ARKANSAS	57,000	68,952	68,975	67,250
MISSISSIPPI			750	725
‡Total 8 Prorated States	3,128,000	3,104,769	3,271,425	2,960,275
Total United States	3,620,000		3,787,925	3,493,400

* Daily average, considering 11 shut-down days, and various exemptions.
† Recommendation of Central Committee of California Oil Producers.
‡ Texas, Oklahoma, California, Kansas, Louisiana, Arkansas, Michigan, New Mexico.

than that of a year ago. But, at this time last year, demand was lagging, and the market was not particularly good.

Crude Stocks Increase

In consequence of the curtailment of refinery runs, while output of the wells of the country remained about unchanged, there was an addition of about 1,300,000 barrels to crude oil stocks in the week ended October 28, the United States total having increased to 230,453,000 barrels. The crude stocks only recently were at a 17½-year low of 229,127,000 barrels, and still are, therefore, at an exceptionally low level.

September crude runs to stills were up

Crude runs to stills in September averaged 3,517,000 barrels a day, an increase of 45,000 barrels over August and 284,000 barrels above September, 1938, it was reported November 9 by the Bureau of Mines.

Total receipts of oil at refineries during the month, the bureau announced, were 103,459,000 barrels of which 100,375,000 barrels was domestic and 3,084,000 barrels foreign, the daily average for the latter of 103,000 barrels being 10,000 barrels above the preceding month.

Natural gasoline output in September was high

Daily production of natural gasoline in September averaged 5,785,000 gallons compared with 4,606,000 gallons in August, it is shown by the monthly report of the Bureau of Mines, issued November 9. As a result of outstanding increases in East Texas, the Panhandle and Texas Gulf districts, the bureau found, production for the month was greater than prior to the 15-day shutdown.

Total production for the month was 173,544,000 gallons compared with 142,800,000 gallons in August, but consumption exceeded output with a consequent decline in stocks. Refinery stocks, the bureau reported, dropped from 114,912,000 to 107,310,000 gallons and stocks at plants and terminals decreased from 163,296,000 to 140,112,000 gallons.

Government will sell Salt Creek royalty oil

Royalty oil accruing to the United States from government lands in the Salt Creek, Wyoming, field will be offered for sale on bids to be opened by the Department of Interior on December 1, it was announced in Washington, D. C., last week by Secretary Harold L. Ickes.

The government's light royalty oil accruals from the field during the first 9 months of the current year amounted to approximately 475,000 barrels and for the calendar year 1938 were about 660,000 barrels and for 1937, about 708,000 barrels, with an average gravity ranging from 36 to 36.9°.

Comparison of Permits Granted for New Wells

STATE	Week Ending Nov. 11	Total this Mo.	Total this Year	Total this Date Last Year	1938 Year Total
Arkansas	4	13	202	209	247
California	32	61	944	1,053	1,146
*Illinois	93	183	*303	.....	.....
Louisiana	30	69	1,228	1,090	1,214
Kansas	30	65	1,367	1,348	1,453
Michigan	44	77	1,276	828	953
*N. Mex.	17	27	*213	.....	.....
Oklahoma	44	101	1,803	1,794	1,978
Texas	244	417	8,985	11,195	12,369
Total	538	1,003	16,270	17,517	19,360

*Data for Illinois dates from Oct. 15, 1939; that for New Mexico from Aug. 1, 1939.

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1937:						
August 28	[5]3,731,450	3,425,000	309,506,000	66,997,000	112,111,000	
September 25	3,666,300	[5]3,455,000	307,974,000	65,620,000	116,472,000	
1938:						
March 19	3,433,550	3,080,000	306,380,000	[1]93,192,000	122,067,000	
August 27	3,388,500	3,255,000	285,029,000	71,754,000	29,747,000	117,179,000
September 24	3,251,150	3,220,000	280,278,000	68,605,000	31,183,000	119,285,000
October 29	3,237,500	3,145,000	275,824,000	67,590,000	33,690,000	120,029,000
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
November 26	3,260,900	3,295,000	270,563,000	68,628,000	33,749,000	119,885,000
December 10	3,245,100	3,150,000	[3]269,509,000	68,587,000	32,068,000	118,711,000
December 31	3,201,450	3,115,000	273,024,000	71,695,000	29,082,000	115,741,000
1939:						
January 28	3,248,250	3,235,000	271,763,000	77,279,000	26,583,000	112,766,000
February 25	3,328,850	3,185,000	271,758,000	84,597,000	23,419,000	110,252,000
March 25	3,382,350	3,225,000	273,915,000	[6] 87,561,000	21,487,000	107,551,000
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,058,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
May 27	3,585,250	3,405,000	278,289,000	84,152,000	26,992,000	109,386,000
June 24	3,452,800	3,430,000	272,297,000	81,733,000	30,239,000	111,726,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[10]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 14	3,713,800	3,600,000	229,870,000	71,263,000	38,687,000	114,780,000
October 21	3,771,550	[3]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 4, 1939	3,501,350	3,465,000	.....	73,262,000	39,460,000	115,036,000
November 5, 1938	3,628,550	3,160,000	[4]275,824,000	68,236,000	[8]	[9]
Change in past year	—3.5%	+9.7%	—16.5%	+7.4%	—6.6%	—8.5%

[1] All time peak. [2] Peak for 1939. [3] Lowest since April, 1922. [4] Stocks, October 29, 1938.
[5] Peak prior to 1939. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] Available data for year ago include only stocks at refineries, and not at terminals, in transit, etc., except in California. Those stocks on November 4, 1938, totaled 32,922,000 barrels, and comparable stocks on November 4, 1939, totaled 30,740,000 barrels, or 6.6% less.
[9] Available data for year ago include only stocks at refineries, and not at terminals, in transit, etc., except in California. Those stocks on November 4, 1938, totaled 120,343,000 barrels, and comparable stocks on November 4, 1939, totaled 109,860,000 barrels, or 8.5% less.
[10] Lowest since October, 1922, due to the shutdown of six Mid-Continent states.

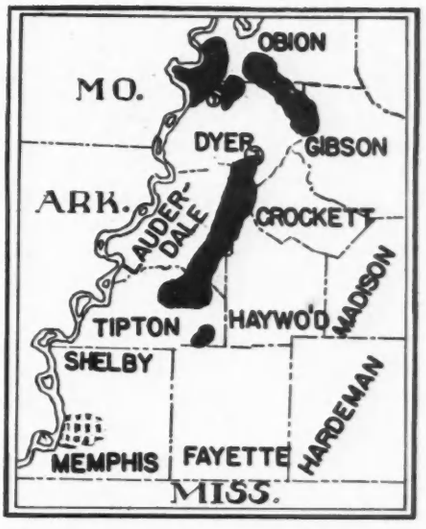
Summary of Wells Completed in the United States Week Ending November 11, 1939

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1939	Total this Date 1938
Alabama	1	....	....	1	.....	2	2
Arizona	....	....	....	....	.....	1	....
Arkansas	1	1	....	....	500	201	196
California	24	23	....	1	15,891	934	1,113
Colorado	....	....	....	....	.....	19	7
Florida	....	....	....	....	.....	....	....
Georgia	....	....	....	....	.....	1	1
Illinois	67	52	1	14	14,292	3,296	1,466
Indiana	8	4	1	3	725	229	153
Kansas	37	26	4	7	132,741	1,254	1,491
Kentucky	15	9	1	5	275	570	705
Louisiana	18	11	3	4	4,179	971	962
Michigan	19	8	....	11	1,390	1,291	862
Mississippi	1	....	....	1	.....	12	17
Montana	....	....	....	....	.....	129	69
Nebraska	....	....	....	....	.....	1	1
New Mexico	18	17	....	1	8,615	576	469
New York	14*	14*	....	....	39	536*	605*
North Dakota	....	....	....	....	.....	....	....
Ohio	30	8	12	10	204	848	833
Oklahoma	36	23	2	11	4,364	1,795	1,888
Pennsylvania	22*	21*	....	1	31	1,336*	1,887*
South Dakota	....	....	....	....	.....	....	....
Tennessee	....	....	....	....	.....	4	2
Texas	204	144	8	52	90,880	8,363	11,016
Utah	....	....	....	....	.....	....	3
West Virginia	16	5	10	1	19	484	621
Wyoming	1	1	....	....	3	124	96
Total this week	532	367	42	123	274,148	22,964	24,365
Total last week	538	391	33	114	199,747	22,432	23,813
Total this year	22,964	15,691	1,667	5,616	.....	....	....

* Includes water-input wells.

U. S. FIELD OPERATIONS

WEST Tennessee found itself in the throes of a heavy leasing campaign, the enthusiasm spreading from neighboring Mississippi, where a second oil horizon was a possibility. Nebraska's first oil well settled to 5 barrels hourly as announcement of prospecting on a 70,000-acre Forest City Basin block in adjoining Iowa was made. Two Kentucky wildcats came through for likely showings; one is near Spottsville, Henderson County, and the other west of Utica, Daviess County. Considerable acreage was thrown open to development in Illinois by Weiler sand saturation in a St. James outpost, and Devonian lime looked like a new pay for Bartelso, Clinton County. Kansas recorded six major pool extensions, 4 in Barton County and 1 each in Rice and Cowley counties. Fields involved were Orth, Wilson, Prusa West, Prusa, Kraft. South Texas hummed with four discoveries in the Corpus Christi, or Lower Coast sector, three Mirando trend wildcats showing for producers, and a large trend play precipitated by indications of Sparta-Wilcox oil production in West Tuleta. Deep Ordovician prospecting in West Texas was dampened by two failures and a disappointing producer therefrom in Apco, Pecos County.



Blackened areas on map show where oil activity centers in West Tennessee. Leasing is heavy in all these sections. Circle 1 indicates Henderson Oil Company's drilling well. Circle 2 indicates location of The Pure Oil Company's test.

Tennessee

Tennessee leasing gets impetus from Mississippi discovery

Memphis—West Tennessee leasing is a reflection of activity around Tinsley dome, Yazoo County, Mississippi. The play, which embraces parts of Tipton, Lauderdale, Dyer, Lake, Haywood, Obion, and Crockett Counties, is estimated to have brought $500,000 into the area, and has brought on the drilling of one well and the staking of location for two others.

In addition to the practical demonstration of Cretaceous productivity east of the Mississippi furnished by the Eutaw-Tuscaloosa and Selma formations at Tinsley the recent report from W. F. Pond, Tennessee state geologist, that indications for oil in West Tennessee are "extremely good" has spurred leasing to boom proportions.

Activity is centering around Dyersburg, with that town's housing facilities taxed to the limit. The Pure Oil Company, Magnolia Petroleum Company, and others have lease men in the area. Shell Oil Company, the Texas Company and Gulf Oil Corporation are reported as taking an active part in the buying. Most leases are being bought in the names of individuals, with the exception of the Pure Oil Company leaseholds that are being taken by a large crew of lease men operating out of Dyersburg.

The Dyer County registrar has estimated that the 400 leases taken comprise 70 per cent of the county area. A partial list of the buyers in that county names E. Randall Henderson, George M. Houston, Wichita, Kansas., The Pure Oil Company, Paul M. Schenk, Houston, Phillips Drilling Company, San Antonio, H. E. Granville, Houston, B. E. Van Arsdale, said to be representing Oklahoma Natural Gas Company, Sell Petroleum Company, Gladewater, Texas, and several Illinois operators.

First indication of the real potentialities of Dyer County will probably come from Henderson Oil Company's test north of Bogota (indicated on map). The Pure Oil Company has moved in materials for a test near Halls (also indicated on map) and has chosen location for another test in the vicinity of Gates.

The Dyer County play had its inception March 1 when Raymond Gear, Hutchinson, Kansas, operator, began buying. The Pure Oil Company made a seismograph survey of the Dyer area last fall but made no move to buy leases until a few weeks ago.

Lauderdale County has recorded 600 leases to date. Lease prices, which were 10 cents an acre prior to the Mississippi discovery have jumped to $1. Lease men concentrating on Lauderdale County are headquartering at Ripley. Gear has blocked up 25,000 acres in the vicinity of Halls and will fulfill a drilling commitment within the next few days.

Covington County activity, which got underway seven weeks ago, now has taken in 250 leases. J. S. Hughes, said to be acting for Magnolia Petroleum Company, has filed several leases which call for a five-year term, while those filed by the Pure Oil Company are for ten years. In addition to the price raise most landowners are demanding a drilling obligation.

Mississippi

Tinsley Dome test misses pay; has oil show deeper

Jackson, Miss.—A showing of oil in the Tuscaloosa (Woodbine) horizon in a test drilling to deeper levels in the new Tinsley Dome field, Yazoo County, last week gave hopes of a third producing horizon for this area, despite the fact that a subsequent drill-stem test of the Tuscaloosa horizon showed salt water.

The Eutaw (Ozan) had previously shown oil in a drill-stem test at the same operation, Union Producing Company's Stevens 1, C NW NW 13-10n-3w, which missed production in the Selma chalk, source of oil in the 3 wells. Coring from 5407-17 feet, the Tuscaloosa showed streaks of oil sand and shale and the next 5 feet showed red, greenish gray shale. A drill-stem test from 5407-17 feet for 7 minutes with ⅜-inch chokes at top and bottom showed 290 feet of mud. Three other tests at this level were missed. Drilling and coring 5508 feet, the test logged sand with an oil show at 5492-5508 feet and ran formation tester that showed 3900 feet of salt water in a 13-minute drill-stem test, then arranged to core ahead.

Two outside locations for Tinsley Dome field were announced. E. C. Johnson is rigging for Brumfield 1, SE SE 2-10n-3w, and J. L. Duncan made location for a test in Section 20-10n-2w. Harry Hanbury leased 100 acres in southwest quarter 17-10n-2w, for a test to start within 42 days.

Wilmut Oil & Gas Company (Tatum et al) staked location in Monroe County

Southeastern States Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALABAMA		
Barbour County (Wildcat)—		
W. B. Hinton, Fee 1, 14-9n-26e	•	5546
MISSISSIPPI		
Hinds County (Jackson)—		
Love Pet Co., State 1 (Blind Institution), 34-6n-1e	•	2662

•Failures; †Junked; ¶Million cu. ft. gas.

for Roberts 1, C NE NE NW 18-13s-17w.

Carroll County is a "hot spot" in leasing. J. P. Evans of Shreveport has over 26,000 acres in Townships 17 and 18 north, Ranges 5 and 6 east; Fred W. Shields has 17,000 acres in Townships 17 and 18 north, Ranges 2 and 3 east. In the same townships and ranges where Evans is leasing, R. N. Turnbow secured 1200 acres. J. W. Lawrence in the same county is leasing in Township 16 north, Range 4 east; J. S. Wheless is leasing in Township 16 north, Range 6 east; and H. L. Hunt is leasing in Township 17 north, Range 6 east.

Activity continues high in the northwest Alabama Basin in northwest Alabama and northeast Mississippi. A. P. Lieser and C. Gardner of Selma, Alabama, for the account of Abercrombie & Harrison have taken out of escrow 22,000 acres in Townships 10 and 11 south, Ranges 13, 14 and 15 west, Marion County, Alabama. Barnsdall Oil Company has leased over 1000 acres in the same county just north of Hamilton.

H. D. Easton, Jr. has recorded a 10,000-acre block in Union County, centering around Section 36-7s-3e, 6 miles southeast of New Albany, which calls for a 2000-foot test by September 9, 1941. P. J. McAlpine has assigned 45,000 acres in Lamar and Marion counties, Alabama, to H .D. Easton, Trustee, covering what is known as the Johnson Ford structure, owned jointly by Easton, F. W. Martin and Harold C. Skidmore.

Three geophysical units were moved to Jackson last week. These were: Stanolind Oil & Gas Company's seismograph unit; Sinclair Prairie Oil Company's seismograph unit; and a seismograph unit of G. S. I. transferred from Monroe County, northeast Mississippi. Indian Territory Illuminating Oil Company transferred a geophysical scout to Jackson from Oklahoma City.

Location of other geophysical units in Mississippi and Alabama include: Carter Oil Company seismograph unit, working northeast of Canton, Madison County; seismograph unit and a gravimeter unit working southwest of Tinsley Dome field in township 10 north, range 3 west, Yazoo County; seismograph unit in Chickasaw County, north Mississippi; and gravimeter unit working near Amory, Monroe County.

Gulf Refining Company, two gravimeter units working in Carroll County; Petty Geophysical Company, gravimeter unit, Hinds County; Plymouth Oil Company, magnetometer unit, Washington County, near Glen Allen; Robert L. Ray, gravimeter unit in Yazoo County, near Bentonia; gravimeter unit, Franklin County; G. S. I. soil analysis unit in southeast Yazoo County; Pure Oil Company, reflection seismograph unit, township 12 north, range 1 west, Yazoo County; S. S. C. reflection seismograph unit, working for Kingwood Oil Company, in township 9 north, range 3 west, Yazoo County.

Magnolia Petroleum Company, gravimeter unit, southeastern Yazoo County; I. X. C. seismograph unit, Rankin County; Amerada Petroleum Corporation, seismograph unit, Jasper County, Alabama, and a similar unit southeast of Tinsley Dome field, Yazoo County; Fohs Oil Company, gravimeter unit, southern Wilkinson County; the California Company, gravimeter unit, Yazoo County near Mechanicsburg; Cities Service, gravimeter unit, western Amite County.

Nebraska

Forest City Basin wildcat produces from Hunton lime

Falls City, Nebr.—Coming in as the first commercial oil well in Nebraska and as the first successful try in Forest City Basin's current activity, Pawnee Royalty Company's Boice 1, CSL N½ NE NE 18-1n-16e, Richardson County, filled the hole with 32.5-gravity crude in 61 hours from 2282 feet in Hunton lime. No water accompanied the fill-up, and very little gas was showing.

Operators immediately began the erection of three 500-barrel tanks, completing the job the middle of the week and ran tubing and rods for a pumping test. During the first 24 hours on pump the well made 230 barrels; during the second the production dropped off to 120 barrels. During the latter hours of the test the well made a consistent 5 barrels per hour into storage. The last test was completed Wednesday and operators began pulling rods and tubing to deepen. Original total depth was only 6 feet into the formation, topped at 2276 feet. Higher markers were the Mississippi lime at 2029 and the Kinderhook at 2154 feet.

Outlet for the crude may be through a line to the Missouri River, thence by barge to either Omaha or down the river to Kansas City. A major crude artery passes within 60 miles of the location.

Phillips makes location on large block in Iowa

St. Joseph, Missouri.—Currently the most important test in this section of Forest City Basin is a location made by Phillips Petroleum Company on a block of about 70,000 acres in southern Iowa. Well is Brown 1, CSE NE 31-71n-30w, 10 miles south of Creston, just north of the south line of Union County. Location is the result of extensive seismograph surveys, with the test located northeast of the heart of the basin. Prospective interest has been high in this sector, and particularly in view of the Nebraska well, the test will be closely followed.

Oklahoma

Chickasha gas pool gets first commercial oil well

Tulsa.—Chickasha gas pool, Grady County, yielded its first commercial oil production when Alma Oil Company's Pettitt 5, SEc 11-4n-8w, in the southern portion of the field, perforated with 69 shots from 3249 feet to 3264 feet to obtain a show estimated at better than 50 barrels of 26.4-gravity oil daily.

Sinclair Prairie Oil Company completed Charlson 4, NEc SE 22-5n-8w, in the Chickasha gas pool for 72,000,000 cubic feet daily, opening the third gas zone for the area. Rock pressure gauged 1875 pounds. Pay is from perforations in sand from 3940 to 3967 feet.

In Frederick pool, Tillman County, Arbuckle lime was found prolific to reveal a good reserve for the area when Indian Territory Illuminating Oil Company et al's Fillmore 1, SWc SE 36-2s-19w, flowed 556 barrels in 19 hours on initial gauge after deepening to 5165 feet. This producer is a north offset to a Canyon lime well. The same company extended the pool ½ mile east when Peter 1, SW NW NW 6-3s-18w, swabbed 43 barrels of oil in 8 hours from Canyon lime perforations at 3140-43 feet in Canyon lime. A west offset, Zeller 1, SEc SW 36-2s-19w, was rigging up to drill.

The third producer for Hobart, Kiowa County, was brought in flowing 140 barrels of 35-gravity oil in 4 hours. Pay zones were perforated at 1131-41 feet and 1150-59 feet.

Lincoln County had its share of failures. Meeker pool was defined on the west at McMahon et al's Percival 1, SEc 24-12n-3e, which cored only hard white Wilcox sand to 5504 feet. Southwest of Sac and Fox pool, Black Gold Refining Company and others gave up Lacquemont 1, NEc 28-14n-6e, after considerable testing above 3179 feet. North of Davenport pool, the county's new pool opener, Kemp, Murray and Griffey's Burk 1-A, NE SW NE 20-17n-6e, southeast of Cushing, flowed 25 barrels of oil in 24 hours after shooting Prue sand, topped at 2864 feet, with 140 quarts. Hole was bottomed at 2910 feet.

Hall-Briscoe, Incorporated's Thompson 1, SWc NE 28-13n-1e, discovery well of Cleveland County's new pool, was completed for 100 barrels of 35-gravity, Cleveland sand oil and 10 barrels of water on a 24-hour test.

The Dunn area, near East Tuskogee pool, Creek County, added another large Misener sand producer to the area by W. M. Dunn et al's Cantrell 2, SW NE SE 34-14n-10e. Sand was topped at 3178 feet and penetrated only 2 feet when a flow of 1020 barrels in 17 hours was recorded. Wilcox sand is also a pay horizon in this pool.

Grayson, Pottawatomie County, was defined to the northwest by J. F. Smith's Lowry 1, NWc SW 10-6n-5e, which drilled to 4590 feet to make salt water.

South and east edge wells in Coyle, Payne County, were making oil. Helmerich and Payne, Incorporated, et al's Collins 3, C W½ NE NW 13-17n-1e, on south line of production, flowed 50 barrels daily from 4887 feet in first Wilcox sand. The Texas Company's Bolster 1, C W½ NW SE 12-17n-1e, east of production, topped Wilcox sand at 4880 feet and drilled to 4891 feet on a 24-hour swabbing test; 22 barrels were recovered.

Balbreath 1, NW NE NW 14-22n-14e, a Pawnee County wildcat, staked by W. H. Atkinson of Oklahoma City on

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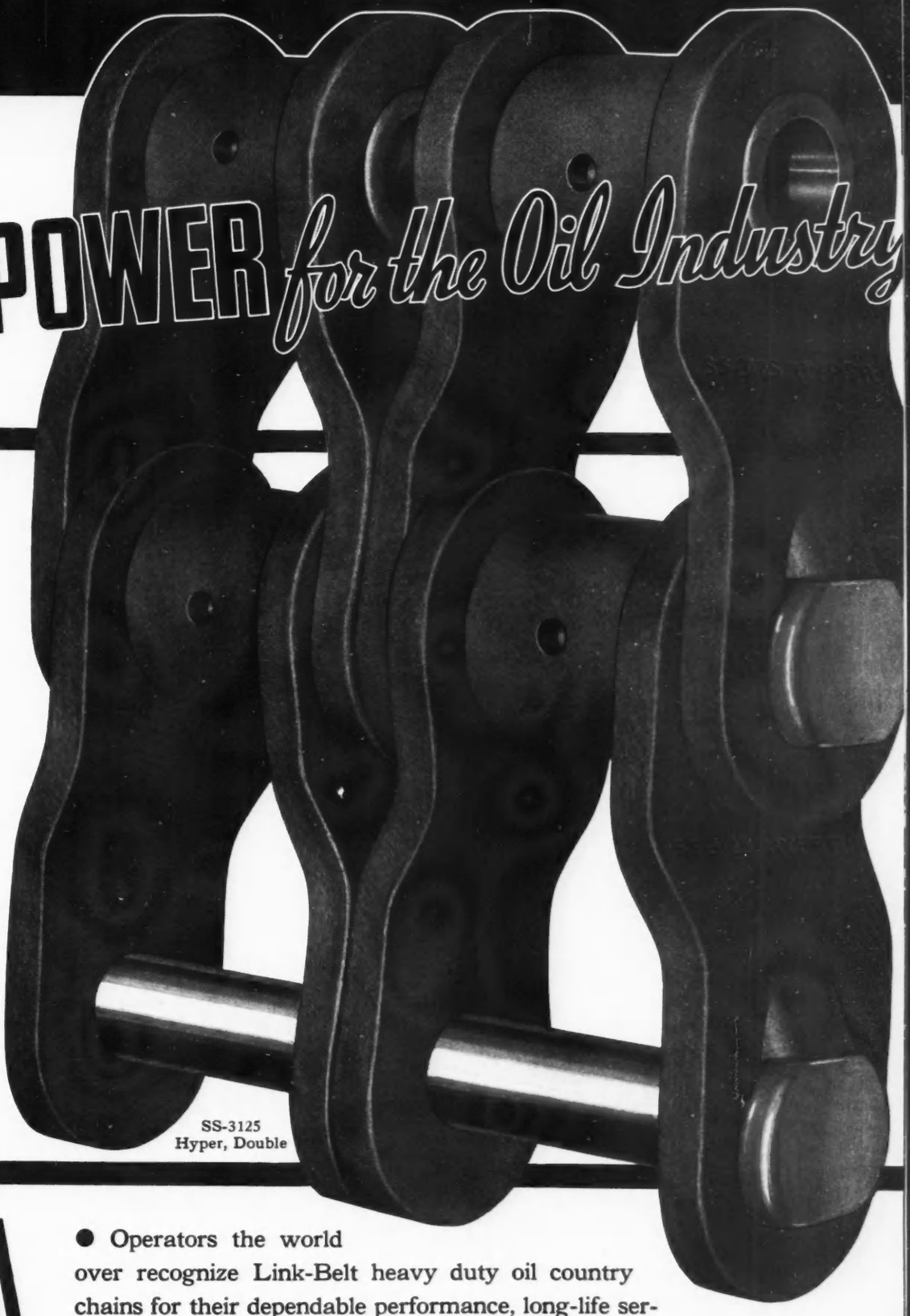
SS-124



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THE CHOICE OF EXPERIENCED DRILLERS

a Carter Oil Company farmout was of major interest. Location is 3 miles south of Mascham pool on a seismograph high. Carter Oil Company's acreage totals approximately 3000 acres in Sections 11, 12, 13, 14 and 23 in 22n-4e. In 1923 Douglas Oil Company's Mercer 1, a wildcat in NEc 15-22n-4e, was good for 5 barrels of oil at 3575 feet in sand, but when shot it filled 500 feet with water and 100 feet with oil. A second sand was encountered from 3931 feet to 3946 feet, total depth, and the hole filled with water. The test was abandoned.

Shallow Water Refining Company plant, Shallow Water, Kansas, has secured additional crude supplies from Continental Oil Company's wells in the Aldrich pool, Ness County. The 2000-barrel refinery has been running about 1000 barrels daily. Continental Oil Company has six producers in the high-gravity pool with a total allowable of 4784 barrels daily, for November.

Oklahoma Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Comanche—		
Smith et al, Truitt 3, c sw se 26-2n-11w	5	213
Truitt, Fee 17, se se nw se 26-2n-11w	5	217
Truitt, Fee 18, sw se nw se 26-2n-11w	5	223
Cotton—		
Shasta, Ta-Hi 1, se nwc se 31-1s-9w	*	2308
McCarthy et al, Jones 1, sec 24-4s-10w	*	1618
Hughes—		
Rogers et al, Scott 1, 180 ft e ne se nw 23-6n-8e	35	2670
Davon, White 1, c n½ nw se 5-8n-10e	150	2875
Jackson—		
Kerbo et al, Danona 2, nwc 6-1s-19w	*	2707
Lincoln—		
Wilcox, School Land 5, sw nw se 16-14n-6e	50	3113
Logan—		
Sinclair-Prairie, Crews 4, ne nw ne 27-16n-1e	80	5197
Noble—		
Phillips et al, Hacket 7, ne se se 21-23n-2w	2508	4357
Okmulgee—		
Deaner et al, Stake 1, 200 ft s ne se se	*	2096
Aggas, Alexander 5-A, sw ne sw sw 16-15n-14e	½	850
Royal, Thomas 12, nw se ne ne 29-15n-14e	1	1685
Osage—		
Sidwell, 8, ne sw sw sw 24-24n-11e	*	1792
I. T. I. O., 445, nw swc nw 31-27n-12e (OTD 1132 ft)	¶ 0.5	1715
Stevenson et al, 2, sw swc 27-28n-10e	20	1306
Pontotoc—		
Phillips, Bates 3, sw ne nw 26-2n-7e (OTD 3805 ft)	¶1	3175
Pottawatomie—		
Texas, Calvin 4, ne nw se 7-8n-5e	125	4362
Atlantic, Walker 1, nw sec sw 4-5n-5e	*	2838
Amerada, Mitchell 2, se ne ne 3-6n-4e (OTD 4337 ft)	24	4272
Alma, Hudson 1, se ne se 24-6n-4e (PB 2904 ft)	5	2930
Alma, Hudson 2, nec se 24-6n-4e..	217	2946
Stephens, Sharp "B" 1, nw sw sw 6-6n-5e	*	4473
Clark, Brown 1, nw sw ne 15-7n-4e (OTD 4297 ft)	50	3900
Alcorn et al, Rice 2, ne se ne 32-7n-4e	350	4295
Deep Rock, Miller 2, sw ne ne 32-7n-4e	225	4310
Schafer, Mars 1, c n½ sw nw 35-8n-4e	52	4087
Stephens, Thron 1, nw se se 36-8n-4e	5	4277
Seminole—		
Winona et al, Davis 1, sec nw 6-6n-8e	421	4225
Burke-Greis, Johnson 1, ne se ne 25-7n-6e	*	4406
Superior, Treadway 1, ne sw se 22-8n-6e	*	4292
Griffey, Harjo 1, ne sw nw 34-8n-7e	*	3366
Stephens—		
Helmerich et al, Graham 1, swc ne 12-1n-5w (OTD 3850 ft)	27	5376
Keister, Jones-Quinn 7, ne nw sw se 23-1s-5w	3	663
Tulsa—		
Barth, Fink 1, sec sw 14-19n-14e..	*	1183

*Failures; †Junked; ¶Million cu. ft. gas.

Kansas

Barton, Rice and Cowley counties get extensions

Wichita.—Barton County reported 4 pool outposts making producers, while Orth, Rice County, was also extended, and Wilson, Cowley County, apparently had a mile northeast extension.

A mile west of Prusa West, Barton County, R. E. Day and others' Feltes 1, SEc NE 14-16-12w, filled 3100 feet with oil from Arbuckle lime, topped at 3342 feet and drilled to 3346 feet. This test was shut down above Lansing lime for nearly a year. A swabbing test was being made. B. B. & M. Drilling Company et al's Krier 1, C E½ SE SE 30-16-11w, a mile diagonally southwest of Prusa pool, swabbed 20 barrels of oil in 2 hours from basal sand at 3327 feet, and was testing. Potential test was being run at J. A. Aylward et al's Harzman 1, C W½ NW SW 33-16-11w, 1½ miles south of Prusa production. Oil is from Lansing lime at 3124 feet to 3232½ feet. Two barrels per hour in preliminary testing was expected to be increased after acidizing with 2500 gallons.

Kraft Outpost Fills

Kraft pool, Barton County, was extended a mile southward when Shell Oil Company's Herthel 1, CSL NW 15-17-11w, topped Arbuckle dolomite at 3272 feet, drilled to 3284 feet, and the hole filled 2830 feet with crude. Swabbing was in progress.

A mile northeast of Wilson pool, Smith and Shawver's Henderson 1, NEc 4-33-6e, topped Arbuckle lime at 3599 feet and drilled in a foot, when oil began filling the hole. Casing was set above the pay and testing was underway.

Charles Seavey et al's Schaup 1, CSL E½ SW 1-16-12w, 2 miles north of Prusa, perforated with 12 shots in Arbuckle lime from 3371 to 3375 feet to get 1200 feet of salt water in the hole and was shut down for orders. Salt water with a show of oil also was noted when the test was perforated with 72 shots from 2880 feet to 2905 feet. Plug-back depth is 3203 feet in Kansas City-Lansing lime.

A wildcat was staked on a large block in Sheridan County by Cities Service Oil Company. This Northwestern Kansas test is located in SWc NE 10-9-27w, 22 miles northwest of Wakeeney pool, Trego County, nearest commercial production.

Forces Five Offsets

The Orth pool extension test, Fred Jones et al's Behnke 1, C W½ SW NW 25-18-10w, a mile east of production, was bottomed at 3207½ feet in Quartzite, the pay horizon, and obtained an 805-barrel potential. Drilled on a 20-acre location, 5 offsets will be forced: Vickers Petroleum Company to the north, Transwestern Oil Company to the southwest and northwest, Cities Service Oil Company to the south and west.

Two extension tests in Russell County are near the critical point. Skelly Oil Company's Anderson 1, CSL W½ NW 8-15-13w, ½ mile from production in Coralena pool, picked up top of Arbuckle dolomite at 3246 feet and drilled to 3250 feet. Plugs were being drilled as fair show of oil was reported. Northeast of Gorham pool, 1800 feet of oil was standing in Johnson-Clinks' Brown 1, SE NE NE 31-13-14w. Depth is 3331 feet, Arbuckle lime.

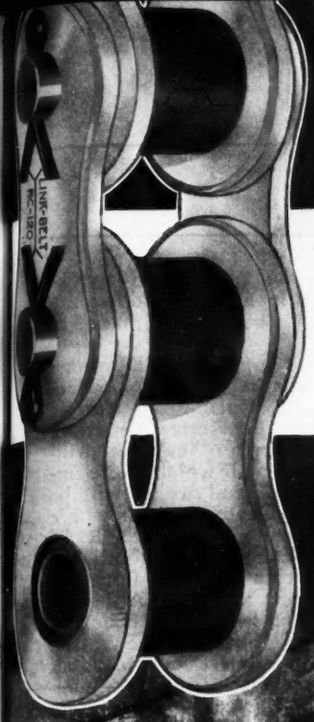
Marylyn Oil Company had a show of oil at 2984 feet in Mississippi lime at Hoard Ranch 1, SW NE NE 28-29-8e, 2 miles northwest of Hannah pool, Butler County, but the test was abandoned when the rig burned.

Cunningham pool, Pratt County, was extended one half mile when Springrose Drilling Company's Sitton 1 was

Kansas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barber—		
Barbara O&G, Thompson "B" 2, c ne 16-33-13w	¶16	4959
Barton—		
Shell, Bitter "B" 6, sw sw nw sw 5-16-13w	3869	3354
Republic Natural, Pospishel 1, nec se 20-17-15w (OTD 3573 ft)	231	3568
Magnolia, Mueller 7, se ne ne 1-18-11w	338	3000
Stanolind, Stucekemann 10, nwc sw 11-20-11w	5473	3272½
Hollow, Schartz, 1, 110 ft n sec nw 18-20-11w (OTD 3335 ft)	130	3356
Butler—		
Henderson, Wilson 16, se ne se 7-25-5e	15	2451
Glass et al, Millheisler 14, se nw ne 4-26-5e	30	2615
Rex-Morris et al, Hutton 4, se sw sw 14-28-7e	35	2707
Cowley—		
Grallop, Ellinger 1, c ne ne 27-32-5e	¶ 0.5	660
Ellinger 2, c nw ne 27-32-5e	¶ 0.5	650
Ellis—		
Darby, Henderson 4, c n½ se nw 7-11-17w	10,235	3455½
Shell, Rumsey 25, sec ne 23-11-17w	74,149	3431
Phillips, Hendrick 4, c n½ se ne 13-11-18w	12,583	3360
Ellsworth—		
Spencer et al, Gemeinhardt 4, cwl nw se sw 31-17-10w	7068	3234
Greenwood—		
O.K.O. Shedell 18, sw sw nw se 15-23-13e	10	1828
Henderson et al, Smith 1, nwc se 8-24-11e	*	1862
Spencer et al, Edwards 1, nwc sw 32-24-12e	*	1903
Jefferson—		
Wakefield, et al, Berridge 1, nwc sw 8-9-17e	*	2981
McPherson—		
H&M Drilling Co., Largee 3, se swc nw 31-19-1w	*	3398
Continental, Mattson 2, csl se ne nw 31-20-5w	1419	3340
Continental et al, Mattson 3, c n½ ne nw 31-20-5w	1810	3335
Pratt—		
Skelly, Moore 3, c sw 25-27-11w..	¶109	4066
Rice—		
Westgate-Greendland, Malm 1, c n½ ne nw 25-20-6w	5	3363
Phoenix, Linville 1, swc se 4-20-10w	*	3282
Russell—		
Texon, Hall 2, 165 ft s sw nw se 26-14-13w	1963	2874
Helmerich et al, Boxberger 1, sec ne 21-14-14w (OTD 3057 ft)	2732	3105
Helmerich et al, Holl 2, cwl sw se nw 22-14-14w (OTD 3073 ft)	2621	3115
Cities Service, Title "A" 2, swc 12-15-14w	240	3346
Cities Service, Hennessy 2, cwl sw se se 26-15-14w	618	3365
Darby, Michaelis 14, cwl sw ne se 36-15-14w	3011	3294
Shell, Dumler 8, se se nw sw 36-15-14w	2891	3322
Stafford—		
Stanolind, Fuller 6, cwl nw ne sw 11-24-11w	340	3741
Stanolind, Sims 3, c s½ se ne 11-24-11w	566	3744
McComb 4, c n½ nw sw 12-24-11w	359	3754
Woodson—		
Alexander et al, Haas 4, ne se se 22-23-14e	*	1690
Henderson et al, Piper 1, se nwc se 19-23-15e	*	1550

*Failures; †Junked; ¶Million cu. ft. gas.



PIPE LINE WORK IS TOUGH ON CHAINS

THAT'S WHY LINK-BELT *Silverlink* IS USUALLY SPECIFIED FOR SERVICE ON DITCHING AND CLEANING MACHINES

● If you've ever watched roller chain in action on a ditching machine you've seen it under one of its hardest tests. The driving element is continuously "on the spot." First, the uneven strain results in a constantly varying pull. Second, the chain is ordinarily exposed to all kinds of weather, as well as to dirt, dust, grit, etc. Note the drives (100% Link-Belt Silverlink Roller Chain) on this large Buckeye Ditcher cutting a 33″ x 60″ ditch for a 24″ gas gathering line.

And there's nothing "soft" about the chain job on a pipe cleaning machine. The rough surface of pits and scales means anything but smooth operation. All drives on the W-K-M Pipe Cleaning Machine (note inset) are Link-Belt Silverlink Roller Chains.

Pipe line contractors know from years of experience that Link-Belt chain stands the gaff of these gruelling jobs, and that it means less breakage and less shutdown time, resulting in economy as well as efficiency.

LINK-BELT COMPANY

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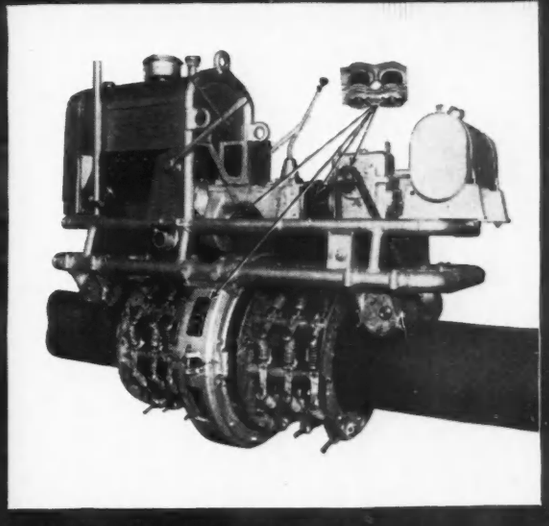

LINK-BELT *Silverlink* ROLLER CHAINS

completed for 58 million cubic feet of gas daily from 4118 feet in Viola lime.

Second Well for Pospishel

A second producer was completed for Pospishel pool, Barton County, when Transwestern Oil Company's Pospishel 1, CWL NW SW 21-17-15w, an east offset to the discovery well, made a state potential of 292 barrels after acidizing Arbuckle lime with 650 gallons. It was drilled to 3590 feet in Arbuckle lime with no water showing.

In Barber County, Roy Patton and Quigley staked Land 1, NWc SW 12-30-15w, 6 miles northwest of Lake City oil pool. Supporting the test are Stanolind Oil & Gas Company, Gulf Oil Corporation, Derby Petroleum Company and Skelly Oil Company.

Kentucky

Spottsville outpost will test McClosky saturation

Owensboro, Ky. — Magnolia Petroleum Company's R. T. Boyd 1, ½ mile north of production on the Sam Green lease in the Spottsville pool of Henderson County, set casing to test 6 feet of McClosky saturation topped at 2248 feet.

Baldwin Oil Company's W. D. Iglehart 1, 2 miles west of Utica and in the Utica pool of Daviess County, was cleaning out after a nitro shot in the Bethel sand at 1280 feet. The well appeared to be a good producer.

Two wildcat tests were failures last week. In Union County, J. H. Hogan et al's (Basin Drilling Company) G. Greenwell 1, 990 feet from the south line and 330 feet from the east line, Section 9-Q-20, was abandoned at 2675 feet, and in Webster County, Oliver Petroleum Company's E. L. Lyle 1, 320 feet from the north line and 1200 feet from the east line, Section 11-N-23, was plugged at 2675 feet.

C. F. Kimmel and associates abandoned G. Wooten 1, 6 miles northeast of Hartford, Ohio County, after drilling to 2300 feet.

Pipe line proration in western Kentucky has been lifted by both Owensboro-Ashland Refining Company and Producers Pipe Line Company. Both buyers are taking 100 percent of offerings.

Kentucky Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Breckenridge County—		
Jack Cooper, Moorman 8	10	235
Daviess County—		
Staves Drilling Co., Inglehart 4	50	1293
Daugherty et al, O'Flynn 3	70	1207
Cane Run Pet. Co., Jackson 3	30	674
Barney Calvert, Miles 3	10	485
Evans O. & G. Co., Clark 6	*	1760
Hancock County—		
Hupp et al, Bannon 18	¶.20	519
Lincoln Pet. Co., McGavock 4	*	540
McLean County—		
South Penn Oil Co., Nall 9	50	1455
Ohio County—		
Taylor et al, Wimsatt 2	25	175
Ken State Oil Co., Fentress 5	25	629
Dundee Valley G. & O. Co., Bonvell 7	5	801
DeHart & Lykins, Fentress 1	*	734
Union County—		
Hogan et al (Basin Drilling Co), Greenwell 1	*	2675
Webster County—		
Oliver Pet. Co., Lyle 1	*	2675

*Failures; †Junked; ¶Million cu. ft. gas.

Illinois

Jefferson County saturation may mark enlarged area

Mattoon, Ill. — Max Conrey's Bert Smith 1, NE NE NW 6-5n-3e, Lone Grove Township, Jefferson County, cored 9 feet of Weiler sand saturation below 1627 feet and set casing. Located ¾ mile southeast of the St. James pool, its successful completion would open a new area for development and force immediate drilling of offsets.

The Devonian lime appeared to be added to the producing horizons in the Bartelso pool of Clinton County as Paul Moseback et al's Robbin 1-B, SE SW SE 5-1n-3e, appeared to have successfully shut off water which gave trouble for several days. Operators were preparing to start swabbing operations as 1000 feet of oil stood in the hole. A decision may be made to acidize.

The deep test topped the Devonian at 2321 feet; whereas present production in the pool is from the Carlyle sand of the Cypress series, found at about 1000 feet. Three other wells drilling in the area, and which were intended as Carlyle sand wells, will be carried to the Devonian. They are Santa Fe Petroleum Company's R. T. Althoff 2, 1200 feet from the south line and 1120 feet from the east line, NE 8-1n-3w; Norton et al's R. T. Althoff 1, C S½ NE SW 9-1n-3w, and Snell & Goldschmidt's N. Shaefer 1, SW NE NW 33-2n-3w, Wade Township, about a mile north of the pool.

Still reported as waiting on cement

Illinois Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Clark County—		
Trenton Rock Oil Co., Black 1	*	2732
Clay County—		
Pure, Holmes Consolidated 4	252	3150
Marc Norton 2	480	3047
Lafe Gill 3	1900	3104
Hawley O. & G. Co., Chandler 2	2	2973
Edgar County—		
Sanders et al, Weaver 1	*	261
Edwards County—		
Wagoner & Schreiber, Siegert 1	*	3075
Fayette County—		
Central States Oil Co., Sperry 1	*	2017
Ohio Oil Co., Schwarm 3	208	1613
Carter Oil Co., Quade 4	260	1552
Ola Harper 7	24	1582
Ola Harper 8	88	1581
M. B. Heckert 7	496	1551
C. Owen 4	216	1550
Union Products Pet. Co., Morrison 3	425	1560
Ada Morrison 4	456	1493
Robert Markham et al, Rhodes 3	130	1556
Hoss, Sealock 3	160	1562
Sealock 4	165	1568
W. B. Johnson, Arnold 3	95	1577
Shell, R. Jedamski 2	110	1582
R. Jedamski 3	135	1581
Texas Co., L. A. Wooton 4	189	1590
Jefferson County—		
Carter Oil Co., Crane 2	65	1940
Yingling & Hays, Woods 1	*	....
Magnolia, J. Gray 1	*	2841
Lawrence County—		
Kesl et al, Gillespie 2	¶1.26	1118
McDonough County—		
DeKalb Hybrid Seed Co., Hartsock 2	*	100
Marion County—		
Thompson Drilling Co., Craig 1	98	2089
Texas Co., T. Fisher 2	210	2159
T. Fisher 3	175	2148
J. Hamlin 3	252	2148
E. Jett 21	196	2060
A. Sweney 4	525	2074
Ed Holmans, Bodwell 1	*	2360
F. McCoy, McFadden 1	*	2165
Blackstock, M. & I. R. R. 4B	200	2067
Kingwood Oil Co., Shanafelt 16-A	390	1881
Magnolia, Young 25	236	2015
Shell, Salem Bank 2B	570	1870
Salem Bank 7B	690	1870
Salem Bank 8B	920	1870
Young 12	50	2060
Young 3B	720	1868
Wabash County—		
Chisholm & Wisdon, Floyd 1	*	1870
Dallas et al, Beard 1	255	2452
M. L. Kitley, Church 1	42	2466
Manly Oil Corp., Waddle 1	*	2822
J. Meyers, Lovellette 1	285	2476
Miller & Murdock, Eplor 1	294	2436
Olin & Hayes, New York Central 1	528	2449
New York Central 2	360	2439
New York Central 3	210	2437
Pearson et al, Shepherd 1	150	2441
Potter & Blalock, Fitzgenel 1	185	2450
Washington County—		
Shell, Kozuszek 6	73	1299
Sharkowski 2	161	1298
Sharkowski 3	95	1287
Wayne County—		
Pure, Fitch 1	28	3160
McCracken 2-A	49	3120
Gulf, Sunderland 2	145	3412
Pryor & McIntosh, Simpson 1	*	3520
White County—		
A. F. Anding, Belva 1	190	3274
Pearson et al, Boultinghouse 1	*	2769
White et al, Ford 1	*	2990
Mazda Oil Co., Orphanage 1	5	3228
Superior Oil Co., Ford 1	150	2196

*Failures; †Junked; ¶Million cu. ft. gas.

Ohio Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Athens County—		
Gibson Oil Co., Vandyke 5	40	410
C. A. Cody, J. Jefferies 4	¶.13	544
E. N. Williams, Aldridge 1	¶.50	893
Cuyahoga County—		
L. F. McGrath, Melber 1	¶.10	3020
Henry County—		
McAfee et al, Damon 1	*	2513
Holmes County—		
Kemrow Co., Bean 1	*	3051
Knox County—		
Upham Gas Co., White 2	20	2916
Johnson et al, Bricker 1	¶.33	2893
Davis et al, Bebout 2	*	2202
Licking County—		
Preston Oil Co., Hoover 2	60	2579
Early Co., Fairall 2	4	693
Ohio Fuel Co., Devboise 1	¶3.45	2590
Settles et al, Wickham 1	*	2696
Shuff & Davis Co., Fisk 1	*	2716
Medina County—		
Preston Oil Co., Gunkelman 6	65	397
Oko Oil & Gas Co., Ross 42	5	585
McCrea Co., Billman 2	*	2690
Meigs County—		
Chase et al, Lasher 1	¶.25	754
Morgan County—		
Pearce et al, Banks 1	5	1215
Muskingum County—		
Atha Co., Baker 1	5	2980
Gas Producing Co., Mautz 1	¶1.20	3962
Noble County—		
Yoker Valley Gas Co., Long 2	¶1.20	1406
Ohio Fuel Gas Co., Bashford 1	¶.30	1308
Merry & Skinner, Fogle 1	*	729
H. P. McGimmis, Bond 1	*	1306
Perry County—		
Atha Oil Co., Thompson 1	*	3225
Davis & Hazlett, Penrod 1	*	3687
Stark County—		
Ohio Fuel Gas Co., Rohr 2	¶.22	4127
Washington County—		
Henry Oil Co., Mulinex 3	¶.40	1228
Anderson Co., Turner 4	¶.40	1545
R. W. Porter, Lynch 1	*	1313

West Virginia Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Braxton County—		
Pittsburgh & W. Va. Gas Co. Hall 7674	¶.55	1715
Calhoun County—		
Four Way Oil Co., Harris 2	5	2300
McIntosh & Grimm, Lockney 1	¶.20	2023
Gilmer County—		
Massey & Jarvis, Jarvis 2	¶.23	1423
Kanawha County—		
Brawley-Reid Gas Co., Campbell 1	¶4.66	5072
United Fuel Gas Co., Ingram 1	¶2.52	5119
Lincoln County—		
Hobbs Bros., Lovejoy 1	¶.24	3540
Roy & McComas, Adkins 4	¶.07	3530
Marion County—		
Monongahela Service Co., Toothman 67	¶.06	2997
Pleasant County—		
Circle Oil Co., Myers 1	5	1900
Ritchie County—		
G. L. Grow, H. Sharpnack 40	1	1750
Roane County—		
Big Spring O. & G. Co., Westfall 2	¶1.25	1560
F. W. Kennedy, Winters 2	6	1540
Wetzel County—		
Hope Natural Gas Co., Shafer 1	¶4.00	1938
Smith et al, J. Dawson 1	*	2095
Wirt County—		
C. C. Hope, Grow 1-A	2	546

*Failures; †Junked; ¶Million cu. ft. gas.

was Kingwood Oil Company's J. O. Shanafelt 18, NW NE 20-2n-2e, which set casing a week ago to test the Devonian lime. The deep test is in the midst of the Salem-Lake Centralia pool, which now accounts for more than half of the state's production, taken from the Benoist and Aux Vases sands and the McClosky lime.

In Hamilton County, Alma Oil & Gas Company's Priscilla Davis 1, SE SW SE 9-7s-6e, was waiting on cement after setting casing to 3176 feet, top of the Aux Vases. The wildcat had alloy casing set opposite the Cypress between 2793 and 2833 feet. It topped the Glen Dean at 2515 feet, Cypress at 2803 feet, St. Genevieve at 3230 feet and Fredonia at 3271 feet. The location is at an elevation of 402 feet.

In Marion County, Tri-B's Dukes 1, 330 feet from the north line and 334 feet from the east line, Section 17-3n-1e, was abandoned at 1509 feet. The wildcat topped the Tar Springs at 1113 feet, the Glen Dean at 1175 feet, Hardinsburg at 1212 feet, Golconda at 1240 feet, Cypress at 1344 feet, Weiler at 1376 feet, Paint Creek Stray at 1445 feet, and the Bethel at 1487 feet.

Appalachian

Pennsylvania Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BRADFORD DISTRICT		
James Evans et al, Bing 423	2	....
T. H. Givan, Bing 317-31-22-27	2	....
Penn Valley Crude Oil Corp., Redfield	5	....
Curtis & Dunlavey Bros., Fee	3	....
E. G. & F. W. Stephan, Kurtzhalts	2	....
Forest Petroleum Corp.	1	....
Bradford Transit Co., 9 Wells	9	....
BRADFORD: WATER INTAKE WELLS		
Forest Oil Corp.	....	....
Forest Petroleum Corp.	....	....
Niagara Oil Corp., 2 wells	....	....
BUTLER-ARMSTRONG DISTRICT		
Rohrbach & Co., Rohrbach	1	....
MIDDLE DISTRICT		
Gilford Bros., John Rafferty	1	....
Warren Bank & Trust Co., Reynolds	5	....
NEW YORK-PENNSYLVANIA: GAS FIELD		
P. P. & L. Co., E. A. Williams	*	....

*Failures; †Junked; ¶Million cu. ft. gas.

New York Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegany County—		
DeFusto & Sawyer, Davidson farm, Bolivar	6	1340
Bradley Prod. Corp., Coats farm, Wirt	5	1354
Bradley & Streeter, Fee farm, Genesee	7	1340
Messer Oil Co., Coon farm, Genesee	5	1370
Cam Oil Co., Peavy farm, Genesee	4	1409
Dermitt & Shaner, Swarthout farm, Bolivar	8	1280
J. & W. Oil Co., Sawyer farm, Wirt	4	1288
ALLEGANY: WATER INTAKE WELLS		
H. W. Patterson, Coyle farm, Scio		785
H. W. Patterson, Milks farm, Scio.		760
H. W. Patterson, Milks farm, Scio.		752
H. W. Patterson, Milks farm, Scio.		763
Max Andrews, Burdick farm, Wirt	....	1292
Tress Oil Co., Northrup farm, Bolivar	....	1387
George Oil Co., R. Scott farm, Alma	....	1370

*Failures; †Junked; ¶Million cu. ft. gas.

Indiana

Posey County wildcat seeks Heusler Dome extension

Evansville, Ind.—Two miles southeast of production in the Heusler Dome pool of Posey County, Gierke et al's Tom Heldt 1, NW NE SW 18-7s-11w, set casing to test the Waltersburg sand. Its successful completion would extend the pool into Perry Township, Vanderburgh County.

Apex Drilling Company's New Harmony National Bank 1, SE SE NW 27-3s-14w, southwestern outpost to Griffin, Gibson County, resumed drilling for a test of the McClosky lime after an electric test showed it to be running high, structurally, to the dry hole drilled due north on the Edith Helm tract. Some saturation was passed through in the Tar Springs, and it may be tested later.

In Gibson County, D. & H. Drilling Company's Sipp 1, wildcat in SE NW SE 24-3s-9w, was plugged at 1240 feet after passing through sand topped at 943 feet. A new wildcat start in this county was Dee and Dee's Rudolph Chappelle Estate 1, 1950 feet from the south line and 330 feet from the east line, Section 99-1s-10w.

In Spencer County, Sunshine Oil Company's L. D. Trent 1, wildcat in NE SW 11-5s-6w, Jackson township, topped the Ste. Genevieve at 1180 feet and was abandoned at 1318 feet.

A second wildcat start was Stoll Oil Refining Company's Omer Franks 1, 600 feet from the south line and 200 feet from the west line, NE NW 14-7n-11e.

Indiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Gibson County—		
D. & H. Dril. Co., Sipp 1	*	1240
Hollandsworth et al, Cooper 1	215	2104
J. E. Amis Jr.'s Cooper 3	115	2099
Midwest Oil Co., Endell 3	75	1478
Posey County—		
McKeehan et al, Keck 1	300	2503
Spencer County—		
Damron Bros., Wright 2	¶10.00	905
Sunshine Oil Co., Trent 1	*	1318
Vanderburg County—		
Illinois Oil Co., et al, Keck 1	*	1823

*Failures; †Junked; ¶Million cu. ft. gas.

Sharp increase in West Virginia drilling permits

Charleston, W. Va.—West Virginia drilling activity, as reflected in permits issued by N. P. Rhinehart, chief of the state department of mines, gained sharply in September over both the previous month and the corresponding month a year ago. Eighty-four permits were granted, an increase of 18, or 27.3 percent, over the previous month, and a gain of 28 or 42.4 percent over the same month of 1938.

Last month's advance brought total permits issued thus far this year to a figure above that of the corresponding period a year ago. Permits issued during the first 9 months of 1939 total 501, compared to 486 issues during the same period of last year. Until September, permits this year had been trailing last year.

Permits issued during September, by counties, follow: Boone 5, Braxton 1, Cabell 2, Calhoun 3, Clay 5, Doddridge 1, Fayette 1, Gilmer 7, Harrison 1, Jackson 4, Kanawha 9, Lincoln 2, Logan 2, Marshall 1, Monongalia 1, Pleasants 2, Putnam 3, Ritchie 10, Roane 3, Tyler 3, Upshur 2, Wayne 8, Wetzel 3, Wirt 3, and Wood 3.

Five Civilized Tribes will offer at public auction in Muskogee 7,750 acres of oil and gas leases in 17 counties in Oklahoma, the sale to begin at 10 a.m. November 15.

They Picked LINK-BELT
Mud Screen for this deep drilling project
● Fain Drilling Co.'s Proctor, Okla., test, projected as the world's deepest hole, is now well below 14,000 ft. Among the equipment selected to successfully fulfill the contract is a Link-Belt vibrating screen, specified for the mud reconditioning job. Contractors everywhere know, from long experience, that Link-Belt screens offer the most efficient, dependable and economical method of reconditioning rotary mud. That's why you'll find Link-Belt screens on a majority of today's drilling jobs.
Made in two sizes—24" x 48" and 48" x 60" screening areas. Full details furnished upon request.
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7865-A
LINK-BELT Vibrating SCREEN

West Texas

Ordovician exploration in Apco disappointing

Midland, Texas.—Two failures and a small oil producer completed the past week in Apco, Pecos County, materially alters the outlook for this Ordovician lime area. Igneous rock encountered by north and southeast outposts to the discovery provided unexpected developments, while Magnolia Petroleum Company's J. S. Masterson 1, 1,320 feet south of the original producer, failed to flow steady after using 500 gallons of acid in Ellenberger saturation at 4515-36 feet. Top of this zone was called at 4505 feet. with an elevation of 2434 feet. Pressure, ranging from 1600 to 1800 pounds, was employed in injecting the acid. The well kicked off with a flow of 57 barrels of oil in 17 hours, then flowed 10.8 barrels of oil in 2 hours after the well was shut in 12 hours to build up pressure. Tubing pressure dropped from 1650 to 14 pounds on the latter gauge.

Anderson-Prichard Oil Corporation et al's Masterson 2, north offset to their producer, drilled igneous rock at 4519-4740 feet, and Childress Royalty Company's Masterson 1-D, also missed the Ellenberger zone, quit in igneous rock at 4515-4605 feet.

Large Gas Volume

An excessive volume of gas is accompanying the oil flow developed by Magnolia Petroleum Company's Sealy 2-43, SW NE NE Section 43, Block F, northern Ward County wildcat on a reef type of structure. High gas yield was anticipated as the well tested 69,500,000 feet of wet gas at 2956 feet before cementing 5½-inch liner on bottom. The well failed to respond to 500 gallons of acid used after gun-perforating liner at 2946-53 feet. Perforations at 2940-47 feet followed by treatment with 1500 gallons of acid yielded a flow of 133 barrels of 28.7-gravity oil and 7,687,000 feet of gas through 1-inch choke daily. Saturated lime was cored at 2914-22 feet and at 2932-52 feet. This strike will not precipitate a drilling campaign as the discovery company and Gulf Oil Corporation control all close-in leases.

Sinclair Prairie Oil Company's Holt 3, east offset to the discovery oil producer in the lower Permian zone in North Cowden, Ector County, logged top of saturation at 5105 feet, and halted at 5120 feet to run 7-inch pipe. Stanolind Oil & Gas Company's Blakeney 1-A, located 3 miles southeast of the deep producer, was listed as a completion the past week, flowing 43 barrels initial after using acid in pay at 5120-60 feet.

Key Well Looks Good

Classed as a key well for the eventual linking of Slaughter, Hockley County, and the Duggan area, Cochran County, Atlantic Refining Company's Boyd-Humble 1, Labor 11, League 56, Cochran County wildcat, logged first porosity at 4949 feet, with an elevation of 3658 feet, and was drilling at 4990 feet. It is scheduled to halt at 5050 feet for the first production test. Seven-inch casing was cemented at 4900 feet.

Dean Brothers and Ed. Hyde's Reed 1, wildcat in southern Cochran County, was changing to cable tools after cementing 7-inch pipe at 4800 feet. Humble Oil & Refining Company's Westheimer-Daube 1, northwestern Cochran County wildcat listed last week as a probable failure, quit in igneous rock at 7414 feet.

Three rigs are in operation on Stanolind Oil & Gas Company's discovery block in Cedar Lake, northeastern Gaines County: American Warehouse Co. 1, west offset to the producer, logged top of anhydrite at 1964 feet, or 22 feet low, and was drilling at 2670 feet. Green 1, south offset to the producer, is credited with checking 8 feet low on anhydrite, and was drilling at 2100 feet. The company's Riley 1, 3-mile northwest outpost, was drilling below surface pipe.

Two Winkler County areas are to receive a revival of development as result of lease farmouts. Krupp and Flaherty Oil Company has contracted to start a test, offsetting a big gasser on the south end of the Kermit area, in obtaining development rights to the S½ NE PSL Section 38, Block B-5, from Amerada Petroleum Corporation. The latter retained 1/16 overriding royalty, and mineral reservations below 4000 feet. Duquesne and Hoffman-Page Company have started operations on Tobe Morton 1-B, NEc S½ PSL Section 11, Block B-12, offsetting production in the Emperor pool. This 320-acre lease was subleased by Humble Oil & Refining Company on similar terms.

West Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Emma)—		
H. Adams & Bradley, University-Superior 2	1256	4312
Anderson-Prichard, Cowden 7	1226	4312
Cochran County (Wildcat)—		
Humble, Westheimer-Daube 1	*	7414
Crane County (Gulf-McElroy)—		
Gulf, J. T. McElroy 203	202	2888
Crane County (Gulf-Waddell)—		
Gulf, Henderson 19	456	3598
Ector County (Foster)—		
Continental, Johnson 7	387	4253
M. B. K. Drl Co. et al, Gist 6-A	1144	4323
Sunray Oil Co-York & Harper, Witcher 3-B	922	4218
Ector County (North Cowden)—		
Standolind, Blakeney 1-A, Roberts 19	1063	4525
Tidewater & Edson Pet. Co., Roberts 3	861	4480
Gaines County (Seminole)—		
Amerada, I. E. Auten 1	1115	5372
Osage Drl Co., Tippett-Ohio 2-A	745	5318
Gaines County (Wasson)—		
Amon Carter et al, Wasson Moore 2-A-46	533	5022
Howard County—		
FHE Oil Co. et al, Snyder 2	206	2854
Sinclair Prairie, Dodge 64	†	1455
Howard County (Wildcat)—		
Richards et al, Read 1-A	*	2977
Jones County—		
Humble, J. W. Hollums 17	950	3246
Moutray & King Drl Co., J. B. Rutledge 1	75	1937
Loving County (Wheat)—		
Martin & Cunningham, Watson 1	*	4305
Pecos County (Apco)—		
Anderson-Prichard Oil Corp.—M. Warner, Masterson 2	*	4740
Childress Roy Co. Masterson 1-D	*	4605
Pecos County (Tobarg)—		
Cardinal, Tippett-Kirby 55-E	14	538
Pecos County (Pecos Valley)—		
Messinger et al, Scharff-Blackmon 1	*	1937
Pecos County (Yates)—		
Ohio, Yates 19-H	1354	1837
Upton County (Wildcat)—		
Moore et al, Mayhew-Superior 1	*	1863
Ward County—		
Gulf, Hutchings 131	1887	2756
Winkler County (Scarborough)—		
Gulf, L. Daugherty 73	353	3037
Yoakum County (Bennett)—		
Argo Oil Corp, Comer 2-A	1296	5210
Magnolia, Mahoney 2	1024	5220
Yoakum County (Wasson)—		
Aloco Oil Co., Miller-Texaco 7-A	1253	5159
Humble, Wooten 21	961	5145
Magnolia, R. M. Kendrick 8	1128	5150
Oil Dev Co., Willard 1-763	671	5215
Willard 3-801	1754	5215
Shell, Baumgart 6-A	1038	5172
Baumgart 4-E	982	5177
Sinclair Prairie, Kendrick 4-A	1744	5150
Skelly, T. R. Rhodes 3	610	5065

*Failures; †Junked; ¶Million cu. ft. gas.

North Texas

Shallow oil discovery is recorded in Archer County

Wichita Falls.—Southwestern Archer County recorded a shallow oil strike that was drilled by Shell Oil Company on the strength of shows previously found in a series of core tests. The company's E. Colgan 1, 1100 feet out of the southeast corner of the J. F. Martin Survey A-278, 4 miles north of Megargel, filled 1200 feet with oil in 12 hours from Swastika sand at 1453-61 feet. A swabbing test through 4½-inch casing at 1453 feet averaged 6 barrels hourly after removing the head. Nearby failures may restrict production to a comparatively small area. The company drilled 13 1500-foot core tests in the area to develop information for locating a deep lime test.

Half-mile northwest extension for the deep lime horizon uncovered recently by Lido Oil Company's Waggoner 21-C, South Vernon district, Wilbarger County, appeared likely at W. B. Omohundro et al's W. T. Waggoner 1, GC&SF Section 2, which cored saturation at 3723-41 feet. Seven-inch pipe was landed after drill-stem test yielded a small amount of oil.

Misses Strawn

Continental Oil Company et al's O. O. Ross Jr. 1, western Clay County wildcat, progressed beyond the projected pay level in the Strawn series without encountering any shows that warranted testing. It was drilling in shale with lime streaks at 4740 feet, and is contracted to 5000 feet. The test is 4½ miles northwest of the Halsell 2-well pool.

British American Oil Producing Company's Hunter-Eddleman 1, west offset to its Caddo lime discovery of the Mankins deep pool, Archer County, proved to be 22 feet low in logging top of Caddo at 4683 feet. Saturation at 4685-4706 feet filled the hole 500 feet

West Central Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County—		
Selvidge et al, fee 9-A, sec 32	*	1212
Callahan County—		
Hart et al, Yost 1, sec 78	*	656
Reeves, et al, Hatchett 1, sec 30	*	500
Wagley et al, fee 1, sec 2996	*	282
Warren et al, Clinton 1-B	30	1680
Hood County (Wildcat)—		
Sowell et al, Burton 1	*	4380
Shackelford County—		
Blanton et al, fee 1, sec 552	*	550
Evans et al, Lee 1, sec 24	*	1297
Georgian Oil Corp., M. Balch 7, sec 502	*	715
Hoffman-Page Co., Morris 38, sec 200	8	1645
Owens-Snebold Oil Corp. et al, McCown 3	2260	3181
Valley Osage Oil Co., McKeever-Texaco 3	965	3195
Stephens County (Wildcat)—		
Swanson et al, Veale-Frost 1 sec, 37	*	4373

*Failures; †Junked; ¶Million cu. ft. gas.

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North Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Burns et al, Ahrens 5, sec 127	1120	4327
Chapman & McFarlin, Wilson 2-A, sec 26	1070	3883
Continental, Wilson-McCrory 3	832	4350
Helmerich-Payne & Blackwell, Wilson 6	1032	3857
Ligon et al, Wilson-Shappell 1-B, sec 26	*	4415
Pet. Producers Co.-United Prod. Co., Shephard 3	984	4360
Southern Pet. Explo. Co., Inc., Johnson 4	896	4324
Baylor County (Seymour)—		
British-American, Green 2-C	140	2573
Clay County—		
Republic Nat. Gas Co., Wyatt 82, sec 25	5	654
Clay County (Wildcats)—		
Gerard et al, Glasgow 1	*	250
Harvey Drl. Co., Taylor 2, sec 33	*	1186
Morgan et al, Brannon Bros. 1	*	341
Cooke County—		
Beard et al, Voth 3	¶3½	1798
McDaniel & Beecherl, Wiesman 3	23	710
Staniforth et al, Voth 5	320	1672
Cooke County (Walnut Bend)—		
Cox & Hamon, K. Neu-Texaco 3-A	880	4970
K. Neu-Texaco 6-B	816	5050
Grayson County—		
Marshall et al, Christman 2	*	852
Hardeman County (Wildcat)—		
Kimball et al, Walling 1	*	5510
Jack County—		
Showers & Moncrief, Lawrence 2	415	3225
J. F. Rogers 2	286	3290
Jack County (Wildcats)—		
Gilmore et al, Walker 1	*	588
Wilkes 1	*	608
Montague County (Bonita)—		
Phillips, Custers 1 (pb to 2895 ft)	15	3768
Montague County (Nocona Deep)—		
Tom E. Nix & Rogers Bros., Nocona Cemetery 1	1408	4444
Wichita County (K-M-A)—		
E. C. Oil Co., Mangold 17, blk 35	616	3834
Mangold 2-A, blk 35	600	3815
Golding & Cochran, Preston 8, sec 27	440	3956
W. H. Hammon et al, McCarthy 14J	336	4012
Hanlon & Buchanan, Inc., Fassett-Tuttle 2-E	960	4052
G. E. Kadane & Sons, Seay 1	744	3830
Southport Pet. Corp. (Del.), Wichita River 6-A	600	3840
Wichita County—		
Burns et al, Goetze 7, sec 2	30	1612
Goetze 9, sec 2	*	1702
Fisher & Dudley, Warren 8	300	1364
Hamilton et al, Lalk 1, sec 285	*	2105
Magnolia, Reilly 157	45	1337
Price et al, Hodges 1, blk 13	1	1710
Proctor et al, Foster 38-A, sec 1	50	1953
Foster 39-A, sec 1	*	1951
Foster 40-A, sec 1	10	595
Wilbarger County (Consolidated)—		
Consolidated et al, Ancell 2, sec 35	558	3802
Ancell 1-J, sec 2	510	3772
Young County—		
Graham Roy. Co., Matthews 29	*	790
Matthews 16-A	5	733
Humphrey et al, Jeffery 1-A	35	3974
Long et al, S. P. Taylor 1, sec 1965	965	3948
R. W. Williams 4-C	30	2534
R. W. Williams 5-C	60	2553
Lupton & J. McLester, J. A. Brown 5	150	3820
Thompson et al, J. C. Vaughn 1-A	25	4342
Trentman-Nunnelee & Rankin, Brashear 1-B	51	4022
Henry Zwelfel et al, Martin 2	189	4001
Young County (Wildcat)—		
Hunt et al, Goss 1, sec 1592	5	1221

*Failures; †Junked; ¶Million cu. ft. gas.

Texas Panhandle Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Gray County—		
Amagray Oil Co., Cobb 1	40	2725
Gayden Oil Co., Archer-Texaco 3	630	3268
Gray Co. Prod. Co., Chapman 5	167	2745
Magnolia, Barrett 9	132	3275
Manston Oil Co., Sullivan 9	419	3232
Hutchinson County—		
Gray Co. Prod. Co., Herring 2	20	3242
J. M. Huber Pet. Co., Weatherly 6-A	2260	3028
Kewanee Oil Co., Lewis 39	176	3050
J. R. Phillips Explo., Inc., Thompson 3	420	3270
Stanolind, Ware 14-A	251	3176
Ware 14-B	172	3160
Texas Co., T. D. Lewis 17	401	2980
Moore County—		
Phillips, McDowell 1	¶42	3253
Texoma Nat. Gas Co., R. S. Coon 6-M	¶10½	3150
Wheeler County—		
Christie & Hickman, Perkins 2	246	2480

*Failures; †Junked; ¶Million cu. ft. gas.

with oil. The test was drilling at 4725 feet, and may be carried to the Ellenberger.

Hull-Silk Extended

An important extension was given the lower Strawn horizon in the Hull-Silk field, Archer County, when J. A. Chapman and Ed McFarlin's Wilson 1-C, NWc Section 29, flowed 800 barrels of 41-gravity oil in 7½ hours after drilling cement plugs from 7-inch pipe, which was landed on top of the sand. This outpost was drilled to 4340 feet. It is ½ mile south and also east of production. Continental Oil Company's Wilson-McCrory 4, Lot 2, Section 28, one of the nearest producers, flowed 176 barrels oil through ¾-inch choke on a 3-hour proration gauge from sand at 4283-4341 feet.

Flush production in the southwest portion of K-M-A was uncovered by Fain-McGaha Oil Corporation's Tidwell 1, NWc of tract, W. H. Spillers Survey, Wichita County, with an initial flow of 100 barrels of oil per hour. Sandy-lime at 3792-3820 feet carried saturation, and the flow was from sand at 3820-27 feet. Tidwell 1 was 10 feet lower on top of lime than the company's Griffin 1-A, but found the oil pay slightly higher.

Granite at Bonita

Solid granite has been encountered by a second test in Bonita pool, eastern Montague County, without developing production from the Strawn series. Fisher, Holmes and Thomas' D. H. Reed-Texaco 1, J. L. Graham Survey, a northeast outpost, quit in granite at 3822-24 feet. Granite wash at 3765-3822 feet did not carry oil or gas. An effort may be made for a completion in oil saturation passed up near the 2000-foot level. United Producers Company and Continental Oil Company's West 1, southeast outpost that recently qualified as a pumper at 3944 feet, has not been gauged.

Montague County is due to receive 2 Strawn-horizon wildcats, and in the meantime W. H. Gant and Continental Oil Company's J. T. Brown 1, 5½ miles northeast of Bowie, has become one of the deepest tests in the county in drilling at 6190 feet. Nominal saturation was logged in sandy-lime at 6074-94 feet. Ramsey Petroleum Corporation will make location shortly for a 5000-foot test on the J. T. Romine tract, near northeast corner of W½ of A. C. Davis Survey, A-202. The block is immediately south and southeast of Montague. Sinclair Prairie Oil Company is credited with having subscribed to a $4000 dry-hole contribution. Youngblood, Foree et al's Admire 1, southeast corner of 80-acre lease, G. W. Fisher Survey, a previously announced wildcat, is preparing to start up.

East Texas

East Texas pressure takes decided slump

Kilgore.—Unofficial survey of the reservoir pressure in the East Texas field at the close of October reveals a greater decline for the month than has been recorded for any similar period since production restrictions were placed on an orderly basis. The slump amounted to about 21 pounds. It is attributed largely to the dissipation of the pressure gain that resulted from the August shutdown and the increased withdrawal of oil and water since the adoption of the 3 factor proration formula on September 14. This drop reduced the average pressure to about 1070 pounds.

The revised proration plan boosted oil production about 118,000 barrels daily, while adhering to two production holidays per week. The allowable increase was assigned to leases that have thick sand section, high bottom-hole pressure and potential rating. The so-called "fairway" section of the Kilgore and Longview areas benefited the most. The October pressure decline was the greatest in these two areas while the Joiner sector registered a near normal drop in bottom-hole pressure.

This change in the physical condition of the field is also reflected by a rise in the volume of salt water production. A revised check on the water output is currently being prepared by the field staff of the commission. Salt water pits are filled to the overflow stage as the long drouth has prevented operators from releasing this impounded fluid when flood waters are adequate to absorb same without causing stream pollution. The comparatively few water disposal wells in operation serve only one or two leases.

The depletion of oil wells has been accelerated by these developments. Total of 44 former producers have been officially listed as plugged within the past 5 weeks including 13 on the latest weekly report.

East Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Kilgore Area—		
Jenkins et al, Crim 3, blk 117	1200	3565
Crim 5, blk 117	900	3565
Longview Area—		
Birdsong et al, J. R. Smith 1, blk 9	1500	3669
Phillips et al, Fee 4 (16½-ac)	7200	3648
Fee 5 (16½-ac)	7000	3640
Stanolind-Tide Water, T. Snoddy 6-B (13.33-ac)	1500	3632
Trico Oil Co., Adkins 2 (5-ac)	1800	3760
Anderson County (Cayuga)—		
Roeser-Pendleton, Inc., Bowyer 4 (200-ac)	¶85	4074
Houston County (Grapeland)—		
Grapeland Oil Co., J. J. Guice 1	¶93	5856
Houston County (Navarro Crossing)—		
Humble, Kennedy Bros. 1 (51½-ac)	¶5	5940
Smith County (Wildcats)—		
Dr. T. T. Grant et al, J. W. Waters 1	*	5893
Texas Co., Scritchfield 1	*	8100
Titus County (Talco)—		
Humble, Sal Blalock 2	364	4355
Marion County (Jefferson-Rodessa)—		
Gulf, Ray 3, Braden sur	120	6017
Texas Co., Braden 6, Fitzgerald sur	298	6007
Arkansas Fuel Oil Co., Neilson 2, R. Bennington sur	¶9	5983

*Failures; †Junked; ¶Million cu. ft. gas.

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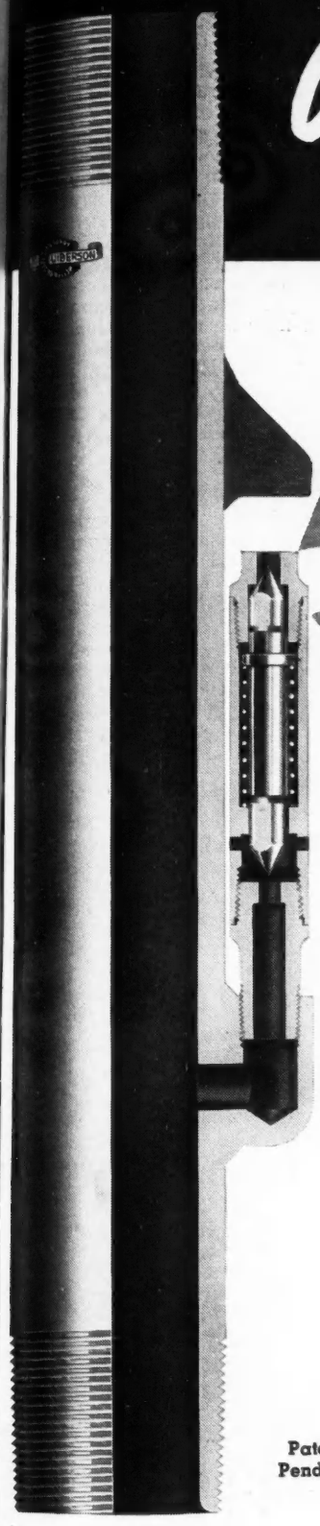

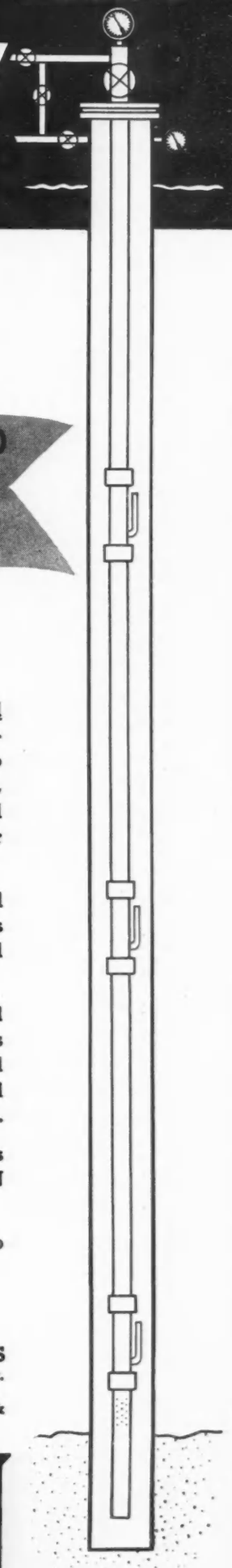

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Southwest Texas

Discoveries recorded in four counties of district

Corpus Christi.—South Texas Gulf Coast's discovery rate continued at a high level with wildcats of the past week adding several more producing areas and new sands. Bee, Victoria, Refugio, and Nueces counties recorded discoveries, several of which appeared to have considerable importance.

Ten miles southeast of Beeville in Bee County and in a general sector not productive, The Coronado Corporation's wildcat on the geophysical prospect on the C. E. Heard ranch found a shaley gas sand at 3253-70 feet, apparently in the Frio. A drill-stem test of the zone was made through ¼- and ⅜-inch chokes, recovering no fluid and developing 320 pounds top and 1460 pounds bottom-hole pressure in 4 minutes. Drilling continued.

The potential discovery is in an area where a number of tests have had showings, but none has been completed as a producer. It is located 466 feet out of the northwest corner of a 150-acre lease in the Michael & Tool Survey and on a 4000-acre block adjoining acreage held by Humble Oil & Refining Company and Republic Production Company.

Strike Near La Rosa

Refugio County apparently has a small new pool in the Refugio group. Morgan-Gulf Oil Corporation's J. M. Thomas 1, south corner of Section 45, 1½ miles north of La Rosa production, was perforated at 6255-57 feet with 23 shots. It jetted slightly in excess of 50 barrels of 22-gravity crude per day through the open tubing. The well found the full sand section from 6255-60 feet and was carried to 6510 feet. It is producing from a sand lens corresponding closely to that of La Rosa field, of which it may be an extension.

An attempt to open a new pool about 4 miles southwest of La Rosa met with failure through the abandonment of Hewitt and Dougherty's B. D. Rooke 3-A, Block 24, which failed to find satisfactory showings to 6520 feet.

Victoria Extended

Victoria County has several interesting and important wildcats. W. Stewart Boyle, obligated to drill several outposts of Victoria field, has the sand in his first operation. Mrs. A. Simon et al 1, 2000 feet northeast of production and in Block 3, cored the gas sand at 2529-64 feet and on 2 drill-stem tests showed for a large producer. It is to be carried ahead to test lower zones. Boyle soon will commence another well about 4000 feet farther west. Both are on Shell Oil Company farmouts.

Houston Oil Company of Texas' Ed E. Dietzell 1, 2823-foot south extension to the Cologne field and discovery of a new sand for the Victoria County area, was continuing tests through perforations at 4826-32½ feet. It is flowing about 25 barrels of 27-gravity crude per day along with the large volume of gas. Efforts will be made to lessen the gas volume and convert the producer into a commercial oil well. The crude showing makes this area much more promising.

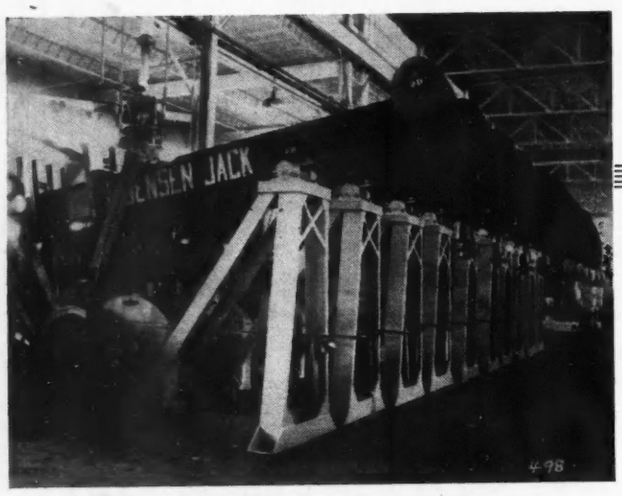
Jackson County's new Texana field was due for a test. Moore & Ahern and Cron & Gracey's Clement 1, a mile southeast of production, was at 6258 feet awaiting orders. It cored a series of condensate sands, all likely to be tested.

A well of considerable interest in Jackson County is George J. Greer's Ward Estate 1, Block 6, about 3120 feet northeast of Magnolia Petroleum Company's West 20-A in the West-Vanderbilt area. The 20-A is the farthest northeast well to the main pool and is an extension for the 5500-foot sand. It failed to make a producer in the 5100-foot discovery sand. As the week closed, the outpost was progressing below 2500 feet.

Deep Sand for North Luby

Nueces County had one strike during the week. Casing has been set in Seaboard Oil Corporation of Delaware's John LaPrelle 4-A, a location northeast of the discovery of North Luby field. It found the Frio sand at 5079-85 feet and on drill-stem test of the section flowed pipe line oil under 25 pounds working pressure in 14 minutes. Present production is found at 4300 feet in one well, the second and third being abandoned as failures.

Wellington Oil Company's activity



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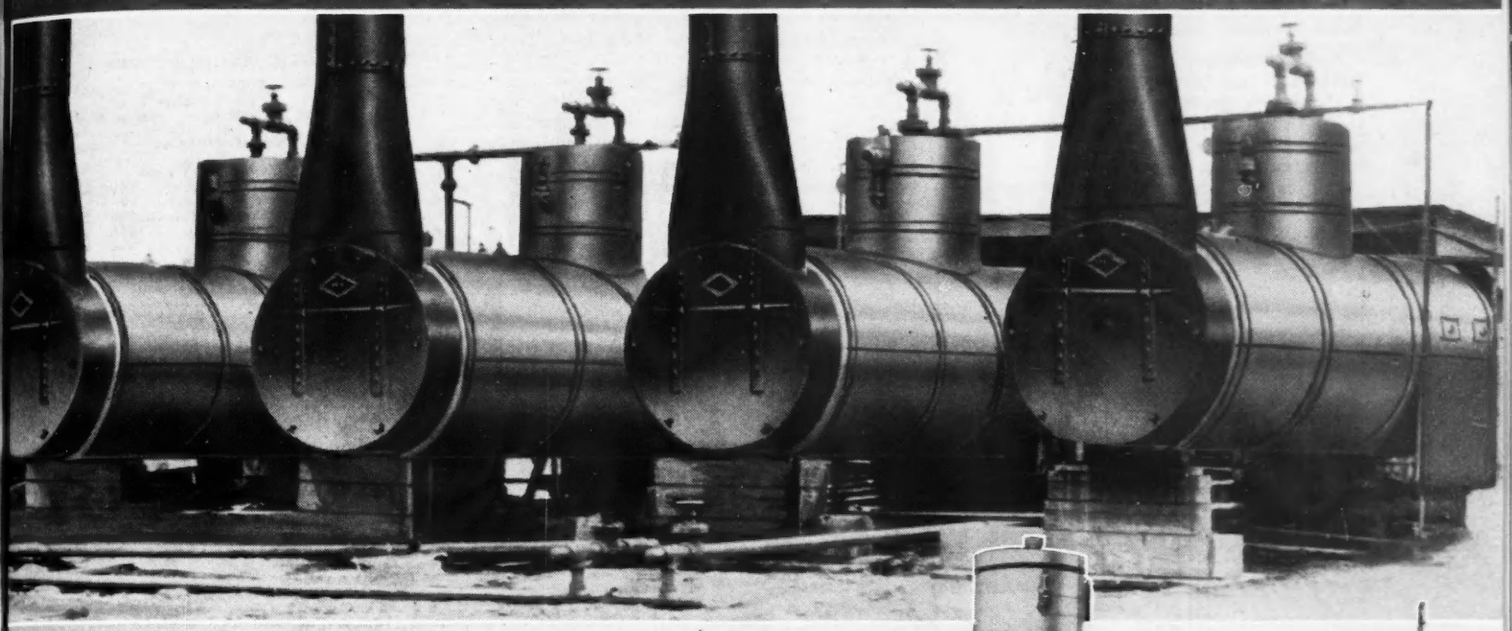

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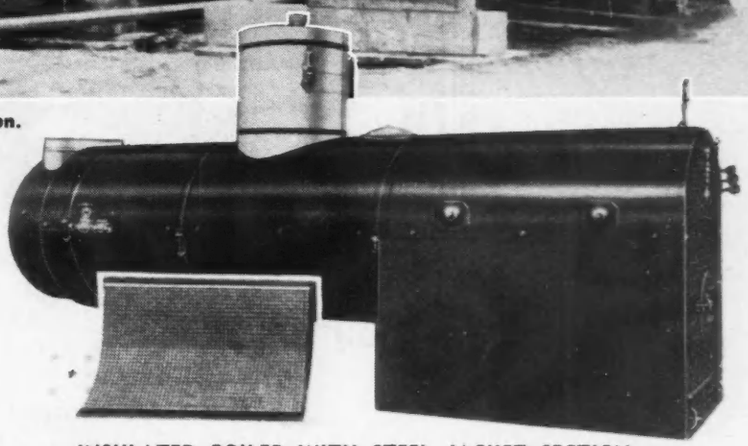

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in Clara Driscoll district is further expanding that Nueces County reserve. Clara Driscoll 1-B, a joint operation with Pan American Production Corporation and about 3000 feet east of the north field, was at 6700 feet on a 7000-foot contract. It has had several sands which showed sufficiently on drill-stem tests to produce and extend the field.

West Tuleta Sparta-Wilcox test shows for producer

San Antonio.—South Texas Sparta-Wilcox trend became the key of wildcatting interest as a deep operation in the West Tuleta field of Bee County showed for a probable producer in drill-stem tests.

Anderson Prichard Oil Corporation and Mills Bennett Production Corporation's Robinson 1, about 2000 feet northwest of production in the Pettus sand, is tied up with a fishing job at 7660 feet, having lost a drill collar and bit in the sidetracked hole. The well previously had lost part of the testing tool in the hole at the same level, then stuck the drill pipe in trying to go by the junk.

The above operation has attracted more attention than any other wildcat drilled in South Texas in years. The well's importance is in the proof of the presence of oil and gas in the Sparta-Wilcox zone. Several tests drilled in the South Texas area have found sands in the zone suggesting that the combination of sands and structure will provide possible major crude reserves. At this time, 4 other wells are drilling to this formation, one is located for such a test, and 5 others have been completed. The limited amount of exploration, therefore, makes the information from this well of even greater importance.

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South Texas Completions

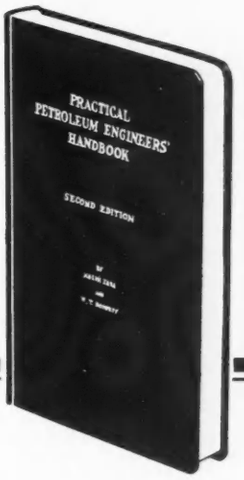
Company, Well and Location	Init. Prod. Bbls.	Depth
Corpus Christi District		
Calhoun County—		
Buchanan & Blanco, Morris & Dunwoody 16 (Heyser)	450	5594
Jackson County—		
Humble, Kubecka 4 (Cordele)	300	2706
Magnolia, West 25-A (West)	1250	5124
Skelly, Kunover 1 (Francitas)	250	9031
Jim Wells County—		
Bridwell, Hoffman 2-A (Ben Bolt)	750	5241
Graham & Mosser, Mosser 6-A (Reynolds)	350	5514
Kilgore Developers, Mosser 4-A (Reynolds)	450	5216
Texas Gulf, Miller 10-A (Reynolds)	400	5170
Pustejovsky 2-B (Reynolds)	450	5169
Nueces County—		
Awoeb, McCampbell 1 (Turkey Creek)	*	4021
Fohs, Texas Rural Communities (Robstown)	*	Lcn
Stanolind, Thompson & Bland 1, Lot 49, (WC) 2500 ft se Riverside field	¶20 & 30	5280
Union, Elliff 1 (N. Agua Dulce)	¶75 & 150	5666
Refugio County—		
Hewit & Dougherty, Rooke 3-A (WC) blk 24, four miles sw LaRosa field	*	6520
Morgan-Gulf, Thomas 1 (WC) sec 45, 1½ mi ne LaRosa field	52	6510
San Patricio County—		
Easterwood, Cryer 3 (Plymouth)	550	5654
Humble, Speer-Fee 2-B (E. White Point)	650	5680
Plymouth, Solar-Contiss 3 (E White Point)	550	5674
Sinclair-Prairie, Womack 7 (E. White Point)	600	5650
Texon Royalty, Rambo 5 (Plymouth)	650	5666
Wood, Donigan 1 (E. White Point)	650	5670
Victoria County—		
Barnsdall, McFaddin 34 (McFaddin)	146	4418
Dash & Colton & Colton, Terrell 1, (WC) lot 2, Siedeck sur, 2½ mi sw Colgne field	*	4928
Houston, E. C. Dietzell 1 (Cologne) opens new sand	¶10 & 25	5171
Stanolind, Vandeberge & Hill 8 (E Placedo)	425	6379
Laredo District		
Cameron County—		
Sal Vieja Oil Corp. et al, Newberry 2 (WC) San Martin Gr. 7 mi sw Port Isabel	*	8445
Duvall County—		
Cuellar Bros, Fee 4-A (Hoffman)	¶2¾	2867
Humble, Duval 9-E (Piedra Lumbre)	37	2110
Magnolia, Duval 1 (WC) sec 300, 2 mi nw SRC	*	2240
Whisenant & Trenchard, Peters 1 (Rancho Colo)	85	1892
McMullen County—		
Wellington, Sanger Archibald 1, (WC) sec 194, 1 mi sw Mountain View field	*	2939
Starr County—		
Davis & Co, Slick 3-B (Rincon)	*	4522
Webb County—		
Magnolia, Volpe Benavides 10 (Volpe)	175	2470
W. C. McBride, Inc., M. Vela 1 (WC) sec 265, six mi n Oilton	*	1840
Zapata County—		
Buffalo, Hinnant 1-E (Mirando Valley)	*	2260
San Antonio District		
Caldwell County—		
Dr. J. F. Atha, Carter 1, (WC) G. Pace sur, opens new pool 3½ mi nw Dale	3	1792
Coffield, Osteem 7 (Dale)	42	2195
Guadalupe County—		
E. A. Weyel, Tr., Schraffl 2, White sur (WC) 3 mi s New Berlin	*	842
Medina County—		
Richardson et al, Burger 1 (WC) 2¼ mi s Dunlay in sur 288	*	892
Zuberbueler (WC) sec 285, ½ mi se Sunlay field	*	468
Milam County—		
Hays et al, Emil Svoboda 1 (WC) Punchard sur, 3 mi se Burlington	*	1567
Williamson County—		
Brown et al, Griffin 1 (WC) Owens sur, se portion of county	*	2285
Kinsely et al, Sloan 1, (WC) Pharrass, 2 mi nw Taylor	*	1075

*Failures; †Junked; ¶Million cu. ft. gas.

Practical Petroleum Engineers' Handbook

SECOND EDITION — Revised and Enlarged

By JOSEPH ZABA and W. T. DOHERTY



JUST OFF THE PRESS

This second edition **of the PRACTICAL PETROLEUM ENGINEERS' HANDBOOK has been completely revised, and enlarged. The many changes which have been made during the past two years in the Standard Specifications of the American Petroleum Institute, particularly in pipe specifications, are incorporated in the new edition. Several tables are rearranged and charts enlarged to facilitate their use. Table of Contents and Index are more complete. Also about 90 pages of new formulae, tables, charts and useful information have been added.**

This Handbook was compiled and published for the purpose of saving the time of operators, engineers, superintendents, foremen and others.

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Draft.

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Gas Flow in Pipe Lines: Weymouth Formula; Nomograph for Weymouth Formula; Oliphant Formula.

Tables of Capacities of Pipe Lines.

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4407-25 feet; Cook Mountain, 4832-62 feet; Weecher, 5749-59 feet; Operculina, top of Queen City sand section, 5963 feet; Cyclamina zone, 6454 feet; derrick floor elevation, 325 feet.

The drill-stem tests on the lower portion of the hole were at 7531-41 feet, recovering 10 feet of 45-gravity oil and a little mud under 310 pounds pressure in 14 minutes; 7541-51 feet, recovering 10 feet of oily mud, 10 feet of oil, 245 pounds pressure, 14 minutes; 7620-40 feet, 200 feet of mud with oil odor and taste, 62 pounds pressure, 12 minutes. The well found sand which was fairly tight, but which had a good odor between 7531-51 feet. A very hard tight sand was recovered in 2 feet of a core between 7650-60 feet. Part of the latter core was lost which may have contained more sand. The well is believed to be in the top of the big sand zone at its present level.

In Webb County, Tide Water Associated Oil Company was progressing below 8322 feet in search of Wilcox sands in A. M. Bruni 7, on the Bruni structure. It is the first well in the Mirando district to be carried into the Wilcox sector.

Marshall Purvis et al's Afflerbach 2, about 4 miles southeast of Yorktown in DeWitt County, was at 7435 feet on its Wilcox contract. Drilling and coring below 8672 feet, Wellington Oil Company et al's Booth 1, on the Fordtran prospect in Victoria County, was considered to be close to the Wilcox zone.

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Three wildcats on Mirando trend report oil showings

Laredo.—Mirando district's wildcatting was clicking with three wildcats encountering showings and preparing for completions to open as many new pools. At the same time, one deep well was making further production tests in opening a deep pool for the trend. These operations add further impetus to a rapidly growing wildcatting program in this sector of South Texas.

Mayfair Oil Corporation's Isabel Gutierrez 1, about 8 miles northeast of Randado in Jim Hogg County, was in final stages of completion after being delayed several days due to rig repairs. It found Loma Novia sand section at 3217-23 feet and on a drill stem test showed considerable very oily mud with good gas blow. Pipe was landed at 3216 feet. The discovery is located in the southeast corner of Block 4, Mayfair subdivision, El Peyote Grant.

Completion of the above well would extend the Loma Novia trend about 35 miles southwest, nearest production in this pay is in the Hoffman field of Duval County.

Show Near Hoffman

Along the same trend and about 2 miles southwest of Hoffman, Magnolia Petroleum Company apparently has another success. Considered to be opening a new field, A. Weil 1, Section 113, is preparing to drill plugs on casing set at 2789 feet, top of the Loma Novia zone. The test, located out of the most northerly west corner, found the sand at 2789-2806 feet and on drill stem test with the seat at 2786 feet recovered 100 feet of oily mud with a gas blow in 40 minutes. It previously had shown for a gas well in the Government Wells sand at 2644-61 feet.

LaSalle County seemed to be gaining its first producing area as plugs were being drilled for a production test in John Vivian's Louis Yeager 1. The well, located in the southeast corner of Block 4, Section 4, W. H. Wallace Subdivision, is in the southeastern portion of the county and in the general vicinity of about a dozen tests showing oil in the Mirando sand. The test has an elevation of 272 feet, ground, and has the sand at 966-76 feet.

Work was still underway on Standard Oil Company of Texas' Jack Casey, which made a distillate producer to open the Sejita field of Duval County. The test flowed several barrels of high gravity condensate with a large volume of gas from perforations 5334-45 feet.

Cayuga to get $190,000 distillate recovery plant

Lone Star Gasoline Company announced last week that the second step of the program to create a distillate recovery system in Cayuga field; that of erecting a $190,000 recycling plant, was to be taken soon. First step, the drilling of three gas-distillate wells, is practically completed.

T. B. Gregory, chairman of the Lone Star Board, has announced that the total cost of the project will be $300,000. It was undertaken by a combine of Lone Star and three other large companies, who expect to extract 35 barrels of distillate from each million cubic feet of gas and return the dry gas to the formation. The wells are expected to produce 50 to 60 million cubic feet of gas daily.

Texas Gulf Coast

New gas-distillate sand on League City flank

Houston.—Phillips Petroleum Company evidently has discovered a new gas and distillate sand at 10,946-62 feet on the northwest side of League City, Galveston County. Wimhurst 1 was drilled to 10,962 feet and it blew out sticking the drill pipe, which could not be loosened. After cementing the stem and drilling out, the well was washed and came in flowing gas and distillate with pressure equalized on the casing and tubing at 4500 pounds. No salt water was shown. There has been no estimate on the amount of fluid or gas that the well is making.

Four miles west of the sea wall and ½ mile north of the Gulf of Mexico, Hebert & Smith made location for John Harris 1, center of a 20-acre tract, formed by Lots 341 and 346, Section 3, Trimble and Lindsey Survey, Galveston Island, Galveston County. The wildcat is projected to the Frio formation.

On the southeast flank of Mykawa, Harris County, McDannald Oil Company has abandoned Clayton Brown 1, H. & T. B. No. 7, at 8012 feet in shale after coring salt water sands. McDannald was searching for Vicksburg formation oil.

On the flank of Allen dome, Brazoria County, Titanic Oil Company's Allen 1 is understood to be running casing to 5230 feet to protect the hole from heaving shale. This well is attempting to establish deeper production horizons.

North of Satsuma, Harris County, Dick Schwab and T. A. Carlton have announced location for a wildcat on the Abe Gorman property. It is 450 feet out of the southwest corner of the M. Wood Survey, or 1½ miles southwest of Robertson 1, which was abandoned by them 2 weeks ago at 6600 feet. They will attempt to find production in the horizon which is producing at Fairbanks.

H. M. Naylor abandoned Hampil 2 on the flank of Thompson field, Ft. Bend County, at 9001 feet after it failed to pick up the large oil section in the Vicksburg formation. Only 1 foot of oil sand was encountered and the remainder was salt water sand. This is the deepest well ever drilled at Thompson.

McDannald Oil Company is preparing to drill a deep Frio well at Collegeport, Matagorda County. Location was staked last week for Shell 1, center of the southeast 20 acres out of the southeast corner of a 164.9-acre tract of the A. B. Pierce Subdivision, D. C. Arthur Survey. Sun Oil Company recently completed Savage 1 in this area as a gas well at 4143 feet, Miocene formation.

Texas Gulf Coast Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Clear Lake—		
Humble, Humble-West Fee C-24	¶¼	5860
Danbury—		
Lloyd Farr, Blakley 1	*	2315
Friendswood—		
Humble, Beamer 32	552	6046
Kiesling & Dixon 18	240	6046
West Prod. Co. 16	528	6047
Hardin—		
O. W. Dyer, Humphreys 2	120	7549
Hastings—		
Stanolind, Edwards 12	423	6090
Reichardt 4	760	5808
Hull—		
McLean Trust, Ward 2	149	5750
Lovall Lake—		
Humble, Steinhagen B-2	171	7785
Stanolind, Steinhagen B-1	170	7775
Magnet—		
Humble, Cockburn 21	142	5540
Old Ocean—		
Sun, Borsodi 2	348	9786
Pierce Junction—		
Gulf, Cain 14	240	4595
Segno—		
Gulf, Wing 23	433	8125
South China—		
Hebert & Smith, Broussard 1	234	7886
South Cotton Lake—		
Salt Dome, Williams 2	91	6521
Spindletop—		
Unity Oil Co., Fee 46	133	890
Thompson—		
J. H. Blaffer, Davis 4	592	5406
Humble, Davis 17	250	5410
H. M. Naylor, Hampil 2	*	9001
Tomball—		
Humble, Theis 3-A	384	5622
West Beaumont—		
Stanolind, McCormick 10	210	5390
Grimes County—		
Roan & Cocker et al, Greer Estate 1, Carlos area, P. O'Connor sur.	*	2825
Wharton—		
S. G. Harrison, Kountz 1, s of El Campo, E.T. R.R. sur	*	5510
Harris County—		
Temple Hargrove, Hermann Hospital 1, Addicks area, W. Hardin sur.	*	7512

*Failures; †Junked; ¶Million cu. ft. gas.

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Louisiana Gulf Coast

Five higher horizons yet to be tested at LaPlace

Lake Charles.—Pan American Production Company, which made a test on Mill 1 on the LaPlace prospect last Friday from 10,000 to 10,020 feet and recovered salt water, is preparing to squeeze perforations for a test of one of the five other horizons encountered. The next test probably will be made at 8900 feet, the next at 8720 feet, and other tests consecutively at 8575 feet, 8340 feet and from 8112 to 8130 feet. The well is practically sure to open the first producing area, possibly a gas-distillate field, for St. John The Baptist Parish.

Shell Oil Company's Iberville Land 1 on the Happytown prospect in St. Martin Parish was reported coring below 9753 feet after 2 drill stem tests at 9736-53 feet were failures. However, the first test showed a small amount of 38 gravity oil after the drill stem was recovered. If no new sands are found the hole will be plugged back for other tests.

Shell Oil Company's Natalbany Lumber Company 2, St. Gabriel prospect, Iberville Parish, which was coring ahead in shale below 915 feet at the end of the week after coring a sand at 9089 to 9100 feet, reported to have had a good odor and cut of oil. This is the second wildcat on the prospect for Shell, the first Natalbany 1, was abandoned 5 months ago after it had indicated it would open a new field. A test at 9050 feet showed 124 barrels of 20 gravity oil and 148 barrels of salt water daily. The hole was drilled to 10,542 feet.

South Louisiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Baton Rouge—		
Wm. Helis, Materise 4	245	6472
Caillou Island—		
Texas Co., State 61	270	4376
Darrow—		
Humble, Community 25	432	4770
Jefferson Island—		
Texas Co., Jefferson Island Salt Mines 3	487	7914
New Iberia—		
Texas Co., Duke 11	55	3774
Potash—		
Humble, Orleans Levee Board 40..	*	6224
Ville Platte—		
Continental, O. Pitre 4	250	9020

*Failures; †Junked; ¶Million cu. ft. gas.

New Wilcox Sand

A new Wilcox producing sand was discovered on the southeast side of Ville Platte, Evangeline Parish, last week when Continental Oil Company made a production test on Coriel 2. The well was perforated with 48 shots from 10,180 to 10,190 feet and came in flowing 279 barrels of 39.6 gravity pipe line oil daily through a 3/16-inch choke. Tubing pressure was 1000 pounds. The well has been killed and another test will be made. The first producer in this area, Continental's H. Haas 3, was completed from perforations in Wilcox at 10,050 to 10,085 feet.

Southeast of Coriel 2, J. K. Hughes is testing Ortego 1, which was abandoned some time ago at 9100 feet, but later worked over and carried to the Wilcox. Ortego 1 was drilled to 10,306 feet in salt water sands, topped at 10,291 feet. An electrical log showed Wilcox oil sands at 10,115 to 10,155 feet, 9960 to 9990 feet, 9910 to 9930 feet and from 9890 to 9905 feet. Casing was set at 10,302 feet and casing perforated at 10,115 feet for the test. The well was flowing an estimated 300 barrels of 40 gravity oil daily through a 3/16-inch choke, with a tubing pressure of 1550 pounds and a casing pressure of 1600 pounds.

In Calcasieu Parish, Gulf Oil Company's Brannon 1 was bottomed at 9162 feet at the end of the week in salt water sand, topped at 9156 feet. An oil sand from 8539 to 8552 feet showed 150 millivolts and 4 ohms. One side wall core taken at 8940 feet showed a sand with a good odor of oil.

The Texas Company was drilling ahead for the 11,820-foot sand in State Horseshoe Bayou 3 at Horseshoe Bayou, St Mary Parish, at the end of the week after picking up sand with a show of oil and gas, but no cut, from 11,323 to 11,331 feet. Horseshoe Bayou is one of the deepest producing fields in the world.

To Test New Sand

The Texas Company probably will test a new sand at Bateman Lake field, St. Mary Parish, next week. St. Mary School Board 1, bottomed at 11,579 feet, has 7⅝-inch casing set. The well had sand with a show of oil at 11,554-59 feet, water sand with a show of distillate at 11,516-19 feet, and a sand with a show of gas at 11,516-19 feet.

After coring 28 feet of new, shallow oil sand at Fausse Point, Iberia Parish, The Texas Company was coring ahead below 5431 feet in State Lake Fausse Point 6. The well also had a sand with a slight show of oil at 5023 to 5030 feet which probably will be tested later.

On the flank of Cote Blanche salt dome, St. Mary Parish, The Texas Company has made location for a deep wildcat: State 1 is 20,913 feet west and 14,445 feet south from the southeast corner of Section 20-16s-6e.

Humble Oil & Refining Company has made location for another wildcat on Johnson Bayou prospect, Cameron Parish, where the operators just finished a 7117-foot dry hole. Pavell 1 is 466 feet south and west of the NEc SW SE Section 5-15s-14w.

Texas permits to drill total 244

The Texas Railroad Commission last week approved permits for drilling 244 new wells in Texas, 173 more than were allowed the week before.

One permit was approved in the East Texas field in Gregg County, while 7 locations were reported from the remaining portion of the East Central Texas area.

Southwest Texas led the state with 73 permits, including 13 in Nueces, 12 in Duval and 10 in San Patricio County. The North Texas District held second place with 49 locations, including 17 in Wichita County.

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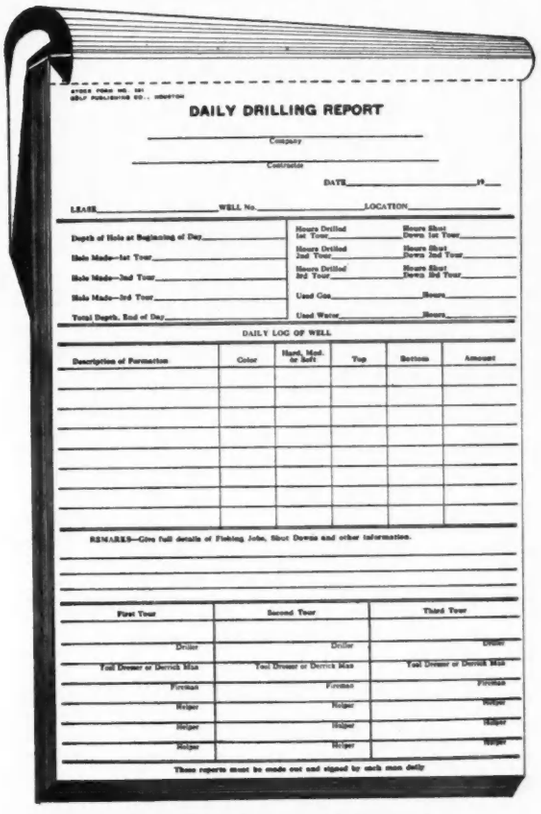

DAILY DRILLING REPORT

Company

Contractor

DATE ____ 19__

LEASE ____ WELL No. ____ LOCATION ____

Depth of Hole at Beginning of Day ____
Hole Made—1st Tour ____
Hole Made—2nd Tour ____
Hole Made—3rd Tour ____
Total Depth, End of Day ____

Hours Drilled 1st Tour ____ Hours Shut Down 1st Tour ____
Hours Drilled 2nd Tour ____ Hours Shut Down 2nd Tour ____
Hours Drilled 3rd Tour ____ Hours Shut Down 3rd Tour ____
Used Gas ____ Hours ____
Used Water ____ Hours ____

DAILY LOG OF WELL

Description of Formation	Color	Hard, Med. or Soft	Top	Bottom	Amount

REMARKS—Give full details of Fishing Jobs, Shut Downs and other information.

First Tour	Second Tour	Third Tour
Driller	Driller	Driller
Tool Dresser or Derrick Man	Tool Dresser or Derrick Man	Tool Dresser or Derrick Man
Fireman	Fireman	Fireman
Helper	Helper	Helper
Helper	Helper	Helper
Helper	Helper	Helper

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drilling 44 new wells in West Texas with 18 in Ector County, and West Central Texas operators reported 21 locations. Producers in the Gulf Coast area listed 46 new locations and operators in the Panhandle were allowed to drill 3 new wells.

Twenty-acre spacing asked for Caplen field

Sun Oil Company has requested 20-acre spacing for the new Caplen field, located on Bolivar Peninsula in Galveston County. The railroad commission was advised that standard spacing with wells 466 feet from lease lines and 933 feet apart was desired.

The proration plan submitted provided for straight acreage proration with the maximum of 30 acres assignable to the final well on the unit. They recommended a gas/oil ratio allowance of 2000 to 1, with a total displacement factor.

There are two wells in the field producing from approximately 7400 feet with a bottom-hole pressure averaging 3300 pounds. No gas cap has been discovered, but an active water drive is indicated by producing conditions.

Three strings of casing would be required on each well, with 100 feet of conductor pipe cemented to the surface and 1900 feet of surface casing set and cemented to the surface. They asked that the oil string be cemented at least 600 feet above the shoe.

North Louisiana

Deep tests in several areas report drilling progress

Shreveport. — Stanolind Oil & Gas Company's deep test at Pine Island, Caddo Parish, Dillon 131, C SE NE 14-21n-15w, which topped Smackover lime at 8953 feet, topped Permian salt at 10,164 feet and drilled last week in salt at 10,210 feet. Seven-inch casing was cemented at 10,147 feet.

North Louisiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bossier Parrish (Bellevue)—		
Gary & Gibson, Connell A-1, 15-19n-11w	15	390
Caddo Parish (Vivian-Hosston)—		
Burnham Drl Co., W. C. Hurdle 1, 34-22n-16w	*	2510
Temple Oil Corp., Bostwick 1, 13-22n-16w	1500	2559
Caddo Parish (Pine Island)—		
J. C. Bailey et al, Muslow A-2 17-20n-15w	*	2221
Bobby Manziel, T. O. Brooks 1, 17-21n-15w	*	1115
Claude L. Nell, Mrs. M. T. Vaughn 1, 1-20n-16w	25	1550
Caddo Parish (Shreveport)—		
C. H. Lyons et al, Rosenblath 1, 35-18n-14w	450	5599
Sabine Parish (Zwolle)—		
Baird & Oglesby, Sabine Lbr. Co., 1, 5-7n-13w	450	2481
Union Parish (Monroe)—		
Memphis Nat. Gas Co., Frost Lbr Co. 2, 22-22n-3e	¶2	2202
Southern Carbon Co., Grayling 33, 30-22n-4e	¶3½	2200
H. L. Woods, Tr., Frost Lbr. Co. 1, 29-21n-3e	¶2	2195

*Failures; †Junked; ¶Million cu. ft. gas.

Testing of the lower Marine horizons in Lisbon Exploration Company's Roberta Vaughan 1, NW NE 36-21n-5w, at Lisbon, Claiborne Parish, was delayed due to lodging of perforating gun which finally was forced to bottom of the hole at 8901 feet.

Arkansas Fuel Oil Company was running 7-inch casing in W. M. Bell 1, SW SW 6-17n-16w, Caddo Parish, 2¼ miles northeast of nearest gas-distillate production in the Waskom field, after electric log was run. This test showed 15,000,000 cubic feet of wet gas daily in a drill-stem test of the Pettet (basal Glen Rose) lime and this horizon will be tested, the Travis Peak having failed to show anything.

The forty-ninth oil well for the Shreveport field was completed last week and another operation was testing. One new location was made. Seven miles southeast of Shreveport field production, David Crawford's Lloyd 1, SWc 29-17n-13w, Caddo Parish, arranged to core for the Pettet lime at 5644 feet. This horizon is productive in the Shreveport field.

Temple Oil Corporation, whose Bostwick 1, NE SE SW 13-22n-16w, Caddo Parish, completed in Tokio at 2558 feet, gauging 1500 barrels daily to extend production 1½ miles from the old Hosston shallow field, made locations for 2 offset wells and secured a pipe line connection for the producer from Caddo Crude Oil Purchasing Company.

A major wildcatting campaign is apparently contemplated just south of the Angelina-Caldwell Flexure in north central Louisiana by Standard Oil Company of Louisiana which has secured over 250,000 acres of leases between Natchitoches Parish on the southeast flank of the Sabine Uplift and the Mississippi River. This company has had geophysical units in this area since discovery of oil at Eola.

Arkansas

Magnolia west edge well flows 21 barrels per hour

El Dorado, Ark.—The seventy-second oil well for the Magnolia field, Columbia County, was completed last week at Arkansas Fuel Oil Company's Willie King A-1, C SE SW 16-17-20, west edge well, completed at 7697 feet, flowing 21 barrels of oil per hour through ¼-inch choke. Top of saturation was 7651 feet, and the well checked considerably lower than the average wells in the field.

Five other tests in this field are either waiting on cement to set after producing strings of casing have been run or are coring at producing depth. The new Dorcheat (Experiment) field of Columbia County, with a lone oil well, completed at 9002 feet recently, now has 5 active operations.

The eleventh oil well for the Stamps-Lewisville field, LaFayette County, was in course of completion at East Texas

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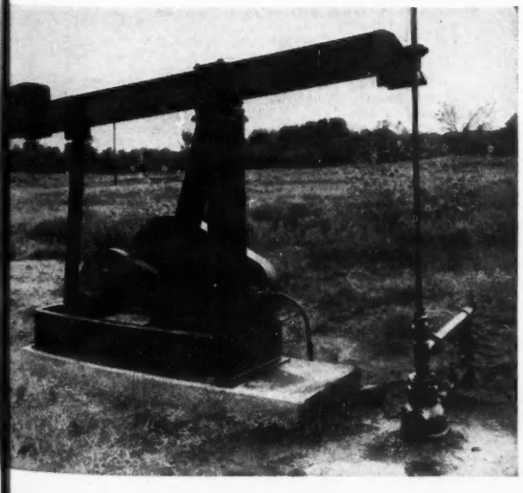

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Refining Company's and Erwin & Leach's Patten A-2, C N½ NW 24-16-24. Total depth is 3480 feet.

Standard Oil Company of Louisiana staked new location for an east offset to its recently completed one-mile east extension of the Buckner field, Columbia County, the new test being Nancy Johnson B-1, C SE SE 9-16-22. The company's 2 Smackover lime geophysical wildcat prospects in Columbia County drilled ahead; Petty Stave Company 1, SE SE 4-17-21, after topping the lower Marine (Cotton Valley) at 5890 feet drilled hard lime at 6010 feet; and R. S. Warnock 1, C NW NW 36-16-20, drilled lime and shale at 5843 feet.

Arkansas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Magnolia)—		
Arkansas Fuel Oil Co., Willie King A-1, 16-17-20	500	7697

*Failures; †Junked; ¶Million cu. ft. gas.

El Dorado, Ark.—Four drilling permits were issued last week in Arkansas, as follows: Columbia County—Standard Oil Company, Nancy Johnson B-1, C SE SE 9-16-22; The Superior Oil Company, C. W. Martel 1, SW SW 10-18-22; Miller County—Mrs. Cynthia Feazel, Heflin 1, located 454 feet north and 350 feet east of SWc Frac. Section 17-20-27; Ouachita County—Sherry O'Brien, Cook Estate 1, located 300 feet N&E SWc NW SW 27-15-18.

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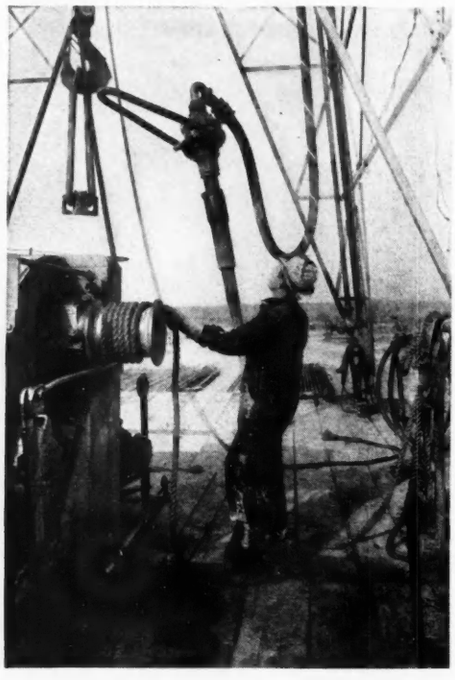

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New Mexico

Two tests in new pool log markers at normal levels

Hobbs, New Mexico.—The two active tests in the western Lea County pool opened last month by Frank Farley et al recorded upper geological markers at normal levels. Argo Oil Corporation's State-Texaco 1, C NW SW 16-20s-32e, west offset to the 2629-foot producer, was drilling at 2515 feet, having logged top of anhydrite at 875 feet, and base of salt series at 2285 feet, with an elevation of 3510 feet. Westlea Oil Company, successor to Farley et al, had progressed to 1415 feet on Cleveland-Texaco 1-C, south outpost. The latter logged top of anhydrite at 865 feet, with an elevation of 3503 feet.

Operations in Lea County have been below normal during the last quarter of the year. Six authorizations were listed the past week, as compared to 8 the previous week.

Texaco Gets Five

Five natural flowing wells were completed by The Texas Company on the south edge of Vacuum within the past week. All are on state permits. State 5-R, C SW NE 6-18s-35e, was the largest of the group, having tested 333 barrels oil in 6 hours from regular lime section at 4295-4710 feet. State 2-X, C NW NE 3-18s-34e, the most westerly producer on the south edge, proved to be a small well in flowing 80 barrels oil in 6 hours from lime saturation at 4420-4700 feet.

Magnolia Petroleum Company's Brunson-Argo 5, C SE NW 10-22s-37e, east edge of the Penrose sandy-lime field, flowed 187 barrels of high gravity oil on 18½-hour completion gauge at 3721 feet. Rig has been skidded ¼-mile east to drill Brunson-Argo 6, with only 2 additional locations remaining for the company in this area. Skelly Oil Company's H. O. Sims 6, C NE SW 34-22s-37e, is a late authorization for the junction of the Penrose and Skelly areas.

New Mexico Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County—		
Aston & Fair, Hudson 2, nw se ne 18-17s-31e	100	3501
Brainard & Guy, Brainard 1, sw ne nw 10-18s-29e	960	2608
Carper Drl Co.—Tallmadge, State 1, nec nw 16-18s-29e	665	2527
Flynn-Welch & Yates, State 1, ne se sw 1-18s-29e	720	2745
Kleiner et al, Watson-Smith 1, nw ne sw 4-18s-29e	48	2638
Me-Tex Supply Co., Ballard 1-B, c nw nw 8-18s-29e	35	3017
State 1-16, ne nw nw 16-18s-31e	*	3535
Lea County (West Eunice)—		
F. C. Wilson Oil Co., State-Shell 1, c ne sw 7-21s-35e	157	3736
Lea County (Lovington)—		
Barnsdall, Caylor 2, near c sw nw 6-17s-37e	480	4975
Lea County (Penrose)—		
Humble, State 5-H, c se nw 34-22s-37e	1176	3665
Magnolia, Brunson-Argo 5, c se nw 10-22s-37e	240	3721
Lea County (Vacuum)—		
Cities Service, State 3-K, c nw ne 27-17s-35e	64	4640
Drl & Expl Co., State-Standard 2-E, c w½ nw se 24-17-34	216	4685
Texas Co., State 3-L, near c se ne 1-18s-34e	1044	4710
State 2-M, c nw nw 1-18s-34e	412	4710
State 4-R, c nw ne 2-18s-34e	656	4710
State 5-R, c sw ne 6-18s-35e	1332	4710
State 2-X, c nw ne 3-18s-34e	320	4700

*Failures; †Junked; ¶Million cu. ft. gas.

California

Possibility of Signal Hill comeback being discussed

Los Angeles.—Possibility of a comeback for Signal Hill, credited with producing 700,000,000 barrels of oil since discovery in 1921, is being talked of in local circles due to performance of DeSoto Oil Company's 10,200-foot deep zone producer in the Lovelady section of the field.

Hence, considerable interest will be attached to results of a production test of another deeper zone scheduled at 9500 feet for Dormax Oil Company well near the intersection of Gaviota and Twenty-fifth streets. Completion of the well as a producer likely would cause considerable line drilling, boosting the field's recovery well above the already rather remarkable per acre figure of 500,000 barrels.

West Montebello continues to lead the state in drilling activity, with the Wilmington-Long Beach area, once the leader, now holding second place. Development of a recently found deeper zone promises to keep West Montebello busy for some months.

Wells within Coles Levee, Kern County, have shown a tendency to take in more and more oil sand. Last week a record thickness of Stevens zone was established when Standard Oil Company of California's No. 20-2 reported having cored in excess of 1000 feet of oil sand.

General Petroleum Corporation's Sullivan 1, Section 12-29-25, Greeley northwest extension attempt, deepened to 11,390 feet and set a formation tester at 11,299 feet. A 5000-foot water cushion will be used.

Paskenta structure, 20 miles west of Corning, Tehama County, will be prospected by Army Oil Compny, comprised of San Francisco army men. The company holds lease on 480 acres.

Near the shore of Salton Sea, 4 miles west of Niland and in the Imperial Valley, Venice Oil Refining Company will drill for oil in an area which has been productive of carbon dioxide gas.

A north extension of Gatchell, Fresno County, will be sought by Superior Oil Company's B-1, C Section 6-20-16.

The Texas Company, which has completed considerable geophysical work in the foothills west of Belridge, Kern County, has spotted a location in the hills back of McDonald Ranch in Section 12-28-19.

Twenty-one rigs are operating at Kettleman North Dome, where the latest completion, Standard Oil Company's No. 61-27Q was good for a restricted flow of 1350 barrels of 36-degree gravity oil per day from 8415 feet. Gas output was estimated at 1,900,000 cubic feet per day.

California Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Los Angeles County (Aliso Canyon)—		
Tide Water Associated, Fernando 11	950	5175
Los Angeles County (East Coyote)—		
Sonwell, Coyote 1	100	3837
Los Angeles County (West Montebello)—		
Graham & Loftus, Coffman 2	619	7652
J. E. Mabee, Monterey 36	775	7751
Standard, Whitehead 8	no est	7715
Caminol Co., Caminol & Ring M. 2-16	600	7640
United Montebello, No. 1	177	7666
York Oil, Long 1	475	7655
Los Angeles County (Torrance)—		
C.C.M.O., Torrance 50	225	5029
Los Angeles County (Wilmington)—		
Brookline Oil, Nix Comm. 1	125	5784
Long Beach Oil Dev., "W" (LB) 5	375	3925
"W" (LB) 6	275	3942
"Y" (LB) 10	355	3917
Royalty Service, Packard 3	228	5715
Kern County (Belridge)—		
Belridge Oil, No. 27	485	8450
Tide Water Associated, No. 24	1643	8566
Kern County (Kern River)—		
D & D Oil, No. 3	6	630
No. 5	5	650
Helm & Smith, H & S 14	5	682
Fresno County (Kettleman No. Dome)—		
Standard, No. 85-21Q	1683	8035
Kern County (Mt. Poso)—		
Vedder Petroleum, Lambert 21-1	138	1527
Kern County (Strand)—		
Shell, KCL B-75-12	3342	8320
Santa Barbara County (Santa Maria Valley)—		
Union, O'Donnell 2-3	3305	5350
Kern County (Arvin)—		
L. C. Morton, Marlow Farms 1	*	5977

*Failures; †Junked; ¶Million cu. ft. gas.

Rocky Mountain States

Cole Creek to get additional drilling; resume at Rock Creek

Casper, Wyo.—Additional exploration at Cole Creek, Natrona County, is planned by General Petroleum Corporation which has location for 1-21-G, C NW NW NW 21-35n-77w, ½ mile northwest of Government 1, which opened production in the Dakota-Lakota. A test northeast, State 1, went to the Sundance but failed. The new test is higher on the structure and will aid

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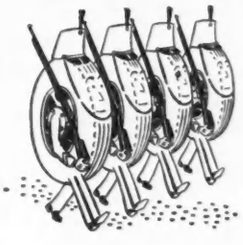

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in determining the trend in the field.

The Ohio Oil Company is resuming work in the Rock Creek field, Carbon County; Harrison-Cooper 15, NW SE NE NW 2-19n-78w, has rig up. The company is also cleaning out and straightening hole in University 1, SW SW SW 26-20n-78w, to recomplete at 3579 feet.

Wyoming Completions

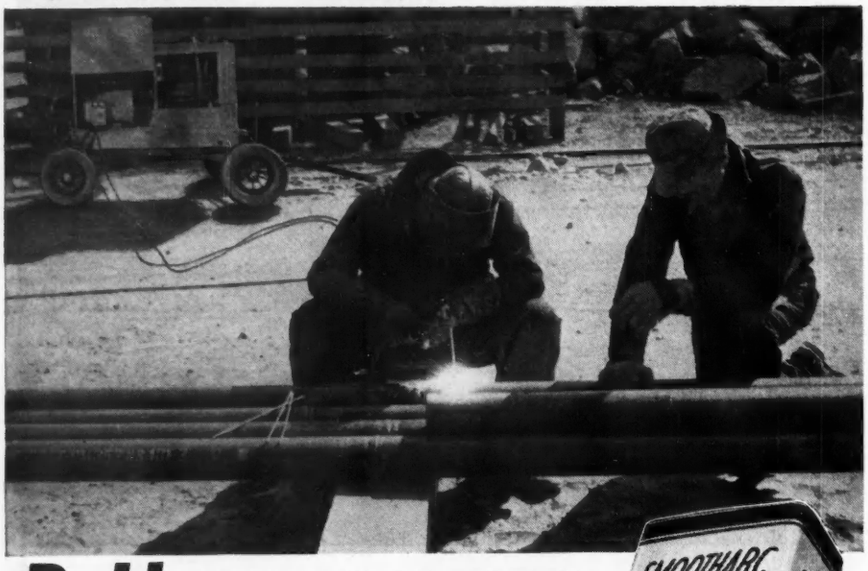
Company, Well and Location	Init. Prod. Bbls.	Depth
Weston County (Osage field)—		
Butcher Brothers', 4, cwl sw ne 16-46n-63w	3	248

*Failures; †Junked; ¶Million cu. ft. gas.

Contract has been let for another test in the Shoshoni district, in Fremont County, by Yellowstone Oil Company; Government 6, NE NE 33-38n-93w, 100 feet south of No. 3 which reported good showings of oil a year ago. A number of test holes were drilled in the vicinity by the company to check on structure, but the No. 3 hole was the only one to show interesting quantities of oil. Present test will be drilled to 1500 feet with standard equipment.

Operators were not able to obtain a seat for the tester in Continental Oil Company's McGrath 1, C NW SW 15-34n-78w, North Geary, Natrona County, and are drilling for the Sundance.

Watch That ARC!



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Michigan

Small number of wells in week of quiet routine

Mt. Pleasant, Mich. — While starts totaled 44, second highest for the year, completions totaled 19 in Michigan for the week, one of the lowest points since early summer. Completions included 8 scattered commercial wells, all inside locations with one exception.

Seaboard Oil Company of Delaware spudded Dolezal 1, NW SE NW 13-3n-11w, Wayland Township, Allegan County, 7 miles east of the Hopkins pool.

Transwestern Oil Company staked location for Stager 1, NW NW NE 34-4n-9w, Irving Township, Barry County.

Hogan Brothers, Inc.'s Alabastine 1, SW NW NW 2-6n-12w, Wyoming Township, Kent County, was completed for 10 barrels on pump from Traverse lime at 1845 feet. It is ½ mile east of the Walker field and probably will bring a number of new locations.

Lease Sales Quiet

Comparatively little action was demonstrated at the November 3 sale of leases by State Conservation Department, with only 8,279.8 acres out of 20,036.9 offered sold. Bonus bids amounted to $1749, or 12 cents per acre average for wildcat and $21.40 per acre for the 35-acre lease listed as proven. American Drilling Company bid in the 35-acre proven lease, located in the Redding field, Clare County, for $750. Lease carries a sliding royalty starting at ⅛ up to 100 barrels and 1/6 from 100 to 200 barrels. This company also paid the highest wildcat bid or $5.62 per acre for a 40-acre lease in Redding Township, Clare County.

Approximately 20,000 more acres of land, on which the state has the mineral rights, will be offered for lease next month.

Michigan Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Bell-Marks, Inc., Parmalee B1, ne se ne 22-3n-12w	*	1651
Socony Vacuums, Markulic 4, nw ne se 14-4n-13w	100	1572
Barry County—		
Strange Oil Co., Margenthaler 1, nw nw nw 10-2n-7w	*	2038
Clare County—		
Taggarts, Inc., Frackelton 21, c se 18-18n-5w	*	1549
Sun, Davis 1, c ne se 16-20n-6w	*	3909
Isabella County—		
Turner Pet. Co., Dennis 1, nw se nw 28-16n-3w	190	3705
Rowmor Corp., Slocum 1, se nw se 28-16n-3w	*	3712
Kent County—		
McGerry, Inc., Welton 1, nw sw nw 36-5n-10w	*	1990
Ide & Glavins, Taalman 3, se sw sw 29-7n-12w	600	1874
Wolverine Gas Corp., Walsh 2, ne ne ne 31-7n-12w	150	1903
Hogan Bros., Alabastine 1, sw nw nw 2-6n-12w	10	1845
Missaukee County—		
Sun, Horner 1, s½ se sw 2-24n-5w	*	3222
Montcalm County—		
Belvidere Oil Co., Mann 3, c ne 23-12n-6w	*	1319
Ottawa County—		
W. R. Borough, Brady 1, se sw ne 25-7n-13w	250	1871
St. Joe County—		
Tom McDaniel, Berkey 1, sw sw sw 16-7s-12w	*	855
Van Buren County—		
R. T. & E., Clinkenbeard 4, se nw 17-1s-14w	25	1221
Consolidated Oil Co., Forb B3, ne se sw 12-1s-15w	75	1203
E. R. Jones, Fox 3, ne se nw 12-1s-15w	*	1216
W. S. Cook, Mahoney 1, nw nw ne 16-4s-13w	*	1196

*Failures; †Junked; ¶Million cu. ft. gas.

WILDCAT REPORT
New Starts and Completions

STATE	WILDCATS STARTED		WILDCAT TESTS COMPLETED							
			Total		Oil		Gas		Dry	
	This Week	This Year	This Week	This Year	This Week	This Year	This Week	This Year	This Week	This Year
Alabama	...	5	1	3	...	...	...	...	1	3
Arkansas	1	35	1	23	...	2	...	...	1	21
California	2	185	...	76	...	20	...	2	...	54
Colorado	1	4	...	2	...	...	...	...	...	2
Florida	...	3	...	1	...	...	...	...	...	1
Georgia	1	4	...	1	...	...	...	...	...	1
Illinois	11	531	4	407	...	27	...	2	4	378
Indiana	2	67	2	42	...	9	...	1	2	32
Kansas	1	221	4	208	...	53	...	9	4	146
Kentucky	...	60	2	30	...	8	...	...	2	22
Louisiana	...	119	...	93	...	13	...	3	...	77
North Louisiana	1	40	...	27	...	3	...	1	...	23
South Louisiana	1	79	2	66	...	10	...	2	2	54
Maryland	...	1	...	...	...	...	...	...	...	...
Michigan	9	238	6	297	...	21	...	...	6	276
Mississippi	1	24	...	10	...	1	...	...	...	9
Missouri	...	57	...	33	...	...	...	3	...	30
Montana	...	5	...	3	...	...	...	...	...	3
Nebraska	...	1	...	1	...	...	...	...	...	1
New Mexico	2	38	...	27	...	1	...	1	...	25
New York	...	1	1	5	...	1	1	2	...	2
Oklahoma	3	156	5	156	...	18	1	8	4	130
Ohio	...	4	...	10	...	1	...	...	...	9
Pennsylvania	...	3	...	6	...	...	...	1	...	5
South Dakota	...	2	...	2	...	...	...	...	...	2
Texas	...	978	29	1,031	3	95	...	21	26	915
East Texas	...	108	2	101	...	3	...	1	2	97
North Texas	7	127	7	200	1	27	...	1	6	72
Gulf Coast	5	106	2	85	...	8	...	1	2	76
Panhandle	...	11	...	10	...	...	...	1	...	9
South Texas	15	458	13	466	2	38	...	15	11	413
West Texas	2	168	5	169	...	19	...	2	5	148
Utah	...	1	...	...	...	...	...	...	...	...
West Virginia	...	2	...	1	...	...	...	...	...	1
Wyoming	1	7	...	4	...	...	...	...	...	4
Total U. S.	66	2,752	57	2,472	3	270	2	53	52	2,149

ALABAMA

COMPLETIONS

Barbour County—W. B. Hinton, Fee 1, 14-9n-26e, abnd 5546 ft.

ARKANSAS

FIRST REPORTS

Ouachita County—Sherry O'Brien, Cook Est. 1, sw nw sw 27-15-18, materials.

Union County—Delta Drilling Co. & Fohs Oil Co.'s C. T. Grace 1, se se 31-17-14 p Smackover line 6628 ft salt water abnd 6749 ft.

COLORADO

FIRST REPORTS

Washington County—Thurman Oil Trusts' Joseph Ruby 1, nw nw sw 3-5s-52w, fsg 150 ft.

GEORGIA

FIRST REPORTS

Montgomery County—E. O. Meadows et al, Moses 3100 ft s & 35 ft w of No. 1, spd.

ILLINOIS

FIRST REPORTS

Clinton County—Norton & McWilliams' Athoff 1, c s½ ne sw 9-1n-3w, dr. Caskaid's C. A. Adams 1, c se se ne 13-3n-1w, loc. International Oil Co.'s C. A. Adams 1, se ne ne 13-3n-1w, loc.

Coles County—Perry Miller's A. S. Ingrum 2, c s½ nw nw 16-11n-10e, loc. Koder's Horsley Heirs 1, se nw ne 31-12n-10e, dr 350 ft.

Gallatin County—J. C. Ingram's Beverley & Turns 1, c ne 19-9s-8e, loc for Devonian test. Delta Drilling Co.'s Wineberger 1, w½ nw sw 21-9s-9e, moving in material.

Hamilton County—Carl Robinson's Gholson 1, ne ne sw 16-7s-7e, rig.

Marion County—Tri-B's Dukes 1, ne ne nw 17-3n-1e, dr. Centralia Refining Co.'s Henning 1, c sw sw 20-3n-1e, rigging up rotary.

Montgomery County—Jack Brown's Cecil Lipe 1, c sw sw se 28-10n-3w, loc.

Saline County—Simon Henry et al's Leten 1, c sw sw se 1-8s-7e, rig.

Wayne County—R. O. Harding's F. H. Simpson 1, n½ ne se 10-1n-6e, rigging up rotary.

White County—Yandell Rogers' Holderby Estate 1, ne ne nw 35-5s-9e, rig.

COMPLETIONS

Clark County—Trenton Rock Oil Co.'s Black 1, c se nw 14-11n-14w, Parker tnp, top Trenton 2598 ft, abnd 2732 ft.

McDonough County—DeKalb Hybrid Seed Co.'s Hartsock 2, nw se se 14-4n-4w, Lamoine tnp, abnd 100 ft.

Wayne County—Pryor & McIntosh's Alva Simpson 1, se ne se 10-3s-8e, Barn Hill tnp, top Fredonia 3430 ft, abnd 3520 ft.

White County—J. W. Pearson et al's (Chisom's) T. E. Boultinghouse 1, w½ sw sw 10-4s-14w, Phillips tnp, top Bethel 2753 ft, abnd 2769 ft.

INDIANA

FIRST REPORTS

Gibson County—Dee & Dee's Rudolph Chappelle Estate 1, 1950 ft from south line and 330 ft from east line, loc. 99-1s-10w, dk.

Sullivan County—Stoll Oil Refining Co.'s Omer Franks 1, 600 ft from s line and 200 ft fr w line, ne nw 14-7n-11e, loc.

COMPLETIONS

Gibson County—D. & H. Drilling Co.'s Sipp 1, se nw se 24-3s-9w, top sand 943 ft, abnd 1240 ft.

Spencer County—Sunshine Oil Co.'s L.D. Trent 1, ne sw 11-5s-6w, Jackson tnp, top Ste. Genevieve 1180 ft, abnd 1318 ft.

KENTUCKY

COMPLETIONS

Union County—J. H. Hogan et al's (Basin Drilling Co.'s) G. Greenwell 1, 990 ft fr s line and 330 ft fr e line, sec 9-Q-20 abnd 2675 ft.

Webster County—Oliver Petroleum Co.'s E. L. Lyle 1, 320 ft fr n line and 1200 ft fr e line, sec 11-N-23 abnd 2675 ft.

KANSAS

FIRST REPORT

Barton County—Day et al's Feltes 1, sec ne 14-16-12w, 1¼ mi ne Ehly pool, otd 3342 ft, co to dd.

COMPLETIONS

Cowley County—Allred's Peninger 1, c ne nw 35-32-5e, 1 mi w Werner gas pool, td 680 ft, abnd. Smith et al's Haney "B" 1, cel nw sw 9-33-6e, 2 mi se Werner gas pool, top Mississippi 3102 ft, top Arbuckle lime 3517 ft, abnd 3526 ft.

Dickinson County—Thorpe Drilling Co.'s Huffman 1, nwc sw 11-13-1e, 3 mi w Abilene, top Simpson 3162 ft, top Arbuckle 3233 ft, abnd 3262 ft.

Leavenworth County—OKO Oil Co.'s Stephanson 1, sec ne 4-11-22e, 4 mi w Bonner Springs gas pool, abnd rig.

McPherson County—Bennett's Petz 1, csl sw nw 8-21-5w, 2 mi se Barnholdt pool, abnd lcn.

NORTH LOUISIANA

FIRST REPORTS

Bossier Parish—J. A. Whitson et al's Bellevue Lbr Co. 1, sw ne 27-20n-11w, materials.

SOUTH LOUISIANA

FIRST REPORT

Plaquemines Parish—Gulf's Buras Levee District D-1, West Bay area, 660 ft n and 660 ft w fr sec sec 6-23s-31e, lcn.

COMPLETIONS

Cameron Parish—Humble's Fee 1, Johnson Bayou area, 7-15s-14w, abnd 7117 ft.

Livingston Parish—Humble's Great Southern Lbr. Co. 1, Springville area, sec 27-7s-5e, cored gas odor 8368 ft, abnd 9371 ft.

MICHIGAN

FIRST REPORTS

Allegan County—Seaboard Oil Co.'s Dolezal 1, nw se nw 13-3n-11w, dr.

Barry County—Transwestern Oil Co.'s Stager 1, nw nw ne 34-4n-9w, rig.

Cass County—Frank Merrill's Phillips 1, sw sw sw 4-6s-16w, lcn.

Clinton County—E. J. Van Core's Fleagle 1, nw sw nw 15-8n-2w, lcn.

Genesee County—R. B. Tamblyn et al's Minter 1, ne sw ne, 34-6n-7e, mim.

Kent County—Sun Oil Co.'s Post 1, se se nw, 10-5n-11w, rig.

Ottawa County—C. E. Weller's Vos 1, ne se ne 33-7n-14w, rig. Joe Molloy's Potter 1,

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sw sw 16-5n-15w, rig. Mesel & Spielberg's Harseboorat 1, ne nw sw 26-6n-15w, lcn.

COMPLETIONS

Barry County—Strange Oil Co.'s Morganthaler 1, nw nw nw 10-2n-7w, Traverse 1985 ft abnd 2038 ft.

Clare County—Sun Oil Co.'s Davis 1, c e½ ne se 18-20n-6w Dundee 3899 ft, abnd 3909 ft.

Kent County—McGerry, Inc., Walton 1, nw sw nw 36-5n-10w, Traverse 1931 ft abnd 1990 ft.

Missaukee County—Sun Oil Co., Horner 1, s½ se sw 2-24n-5w, Dundee 3138 ft so3140 ft abnd 3222 ft.

St. Joe County—Tom McDaniel, Berkey 1, sw sw sw 16-7s-12w, Traverse 823 ft abnd 855 ft.

Van Buren County—W. S. Cook, Mahoney 1, nw nw ne 16-4s-13w, Traverse 1176 ft abnd 1196 ft.

MISSISSIPPI

FIRST REPORTS

Monroe County—Wilmut Oil & Gas Co. (W. S. Tatum), Roberts 1, c ne ne nw 18-13s-17w, materials.

MISSOURI

COMPLETIONS

Andrew County—Davis Brothers' et al George Gee 1, nwc se 28-60n-35w, 14 mi n St. Joseph, top St. Peter 2600 ft, top Arbuckle lime 2665 ft, abnd 2750 ft.

NEW MEXICO

FIRST REPORTS

Eddy County—Dodson Drl Co.'s McElreath 1, swc 3-16s-29e, dr 110 ft.

Lea County—Culbertson & Irwin, Inc.'s J. S. Lea 1, c ne ne 8-19s-32e, cem sur pipe.

NEW YORK

COMPLETIONS

Tompkins County—New York State Natural Gas Co.'s Mary Taubman 1, Danby tnp, top Tully 1103 ft, top Onondaga 2393 ft, com in Oriskany for 5,000,000 cubic ft a day.

OKLAHOMA

FIRST REPORTS

Jackson County—Bryant et al's Neal 1, swc 18-1s-20w, drk. English Drilling Co.'s Aetna 1-A, sec ne (twin well) 26-3n-20w, dr.

Stephens County—Johnson's Baker 1, c se nw 35-2s-6w, rig.

COMPLETIONS

Grady County—Sinclair Prairie Oil Co.'s Charleston 4, nec se 27-5n-8w, completed, Chickasha gas pool, new horizon, top sands 3918 ft, 3940 ft, td 3968 ft, 1710 lbs. shut-in pressure, 43,600,000 cu ft gas.

Jackson County—English Drilling Co.'s Atent 1, sec ne 26-3n-20w, 6 mi n Altus pool, top Granite Wash 1034 ft, abnd 1240 ft.

Love County—Nelf et al's Brahma 1, nwc sw 35-6s-2e, 4 mi ne Marietta, top Viola 2890 ft, abnd 3012 ft in Viola.

Pawnee County—Kelly's Hill 1, swc se 1-21n-5e, 6 mi w Skedee pool, top limestone 3353 ft, abnd 3370 ft, hfw.

Payne County—Newsom's Jones 1, nec sw 15-18n-3e, 1¼ mi n Mecham pool, top Mississippi 4019 ft, abnd 4254 ft in Marshall series.

WEST CENTRAL TEXAS

COMPLETIONS

Hood County—D. S. Sowell et al's B. Burton 1, 2500 ft from ne and 5200 ft from se lines of L. Campbell sur, elev 740 ft, trace gas 4218-22 ft, abnd 4380 ft.

Stephens County—A. G. Swanson et al's Veale-Frost 1, c ne ne T&P sec 37, blk 8, elev 1230½ ft, top Barnett shale 4185 ft, top Ellenberger 4333 ft, abnd in water 4370-73 ft.

NORTH TEXAS

FIRST REPORTS

Cooke County—Fleming & Kimbell's J. W. Hess 1, 870 ft s and 150 ft w of nw cor lot 2, O. F. Leverett sur, but in T. F. Bates sur A-41, 2 mi w Muenster, dr 460 ft. R. C. Heydrick et al's Mrs. Wm. Franklin 1, 2000 ft e thence 1000 ft s of se cor of L. Raney sur A-878, but in A. Rodriguez sur A-85, 2½ mi nw Bulcher, lcn for Ellenberger test.

Denton County—Jones Drl. Co.-Dilworth S. Hager's H. K. Armstrong 1, 330 ft from s and 700 ft from e lines of L. Moore sur A-824, rur for 1750-ft test. Kerlyn Oil Co. et al's I. M. Hallmark 1, 150 ft out of nw cor of e 107 acres of s 157.3 acres of D. C. Cady sur, 3 mi s and 3 mi w of Pilot Point, lcn for 2200-ft test.

Grayson County—John Gray et al's Geo. Brown 1, 150 ft out of nw cor of J. W. Dogin sur A-377, 2 mi w and 1 mi s Pottsboro, dr 200 ft.

Motley County—Humble O&R Co.'s Matador L&C Co. 1, 330 ft from e and 7500 ft from n lines of Blanco C.S.L. sur, sw cor county sp on 6000-ft test.

Wichita County—Grisso Royalty Corp's A. H. Barwise 1, 150 ft from e and 750 ft from w lines of 345-ac tract in Jas. Cole sur A-37 1 mi n and 6 mi w of Clara, lcn for 2000-ft test.

COMPLETIONS

Clay County—Doug Gerard et al's Mrs. E. A. Glasgow 1, 1200 ft from se and 300 ft from ne lines sec 35, Bacon sub-div, abnd 250 ft. Harvey Drl. Co. et al's C. T. Taylor 2, 2628 ft from n and 150 ft from w lines sec 33, Bacon sub-div, abnd 1186 ft. J. A. Morgan et al's Brannon Bros. 1, 1050 ft from w and 700 ft from n lines sec 60, Bacon sub-div, abnd 341 ft.

Hardeman County—Geo. T. Kimball & Harry Hines' W. T. Walling 1, 1900 ft from s and 2100 ft from w lines W&NW sec 368, blk H, top Merkel anhydrite 690 ft, top lime 4065 ft, abnd 5510 ft.

Jack County—R. C. Gilmore et al's Mrs. M. A. Walker 1, 1170 ft from s and 300 ft from e lines S.P. sec 2, A-2250, abnd 588 ft; O. Wilkes 1, 1000 ft from n and 2600 ft from w lines tract, E. Smith sur A-524, abnd 608 ft.

Young County—E. W. Hunt et al's H. M. Goss 1, 1216 ft from s and 1100 ft from e lines TE&L Co. sec 1592, Gunsight lime 1199-1202 ft, broken sand 1212-21 ft, pumped 5 bbls initial.

WEST TEXAS

FIRST REPORTS

Crockett County—Moore Bros. Corp's Henderson-Sinclair 1, sw ne nw GC&SF sec 51, blk OP, cem sur cas. Continental Oil Co. et al's Todd 5, 1320 ft from s and 1980 ft from m/w/w line GC&SF sec 30, blk WX, mim for 1300-ft test.

Tom Green County—Johnson & Bryan's Dr. J. M. Rape 1, 330 ft from e and 495 ft from s lines lse.

COMPLETIONS

Cochran County—Humble O&R Co.'s Westheimer-Daube 1, 660 ft from n 1980 ft from e lines labor 1, league 146, Stonewall C.S.L., elev 3862 ft, top anhydrite 2040 ft, top salt 2105 ft, top Yeso 4680 ft, top Abo 5490 ft, top igneous rock 7353 ft, abnd 7414 ft.

Howard County—M. L. Richards et al's Read 1, nec nw T&P sec 36, blk 30, T-1-N elev 2247 ft, top anhydrite 805 ft, salt series 1095-1512 ft, top white lime 2012 ft, abnd in sul w 2977 ft.

Upton County—N. A. Moore et al's Mayhew-Superior 1, nec nw GC&SF sec 2, blk W, elev 2392 ft, top anhydrite 395 ft, base salt 1010 ft, top Yates 1095 ft, top white lime 1808 ft, trace oil 1725-52 ft, abnd in sul w 1860-63 ft.

SOUTH TEXAS

FIRST REPORTS

Bexar County—Leavitt Corning, Jr., Barker 1, 150 ft n line, 150 ft w line of Tr., in Sur 2, lcn. Heller Petroleum Co., Wildmann 1, 150 ft nw line, 450 ft ne line of Tr 3, Juan Jose Sanchez sur, 34, lcn.

Burleson County—H. Y. Bennett, Tom Giesenschlag 1, 225 ft e line, 325 ft s line to tr., in John Hollingsworth sur., lcn.

Calhoun County—Continental Oil Co., Powderhorn 2, 2000 ft n, 1700 ft w of se cor sec 2, blk j, Juan Cano lge, 2½ mi s Bayside Beach, drl 3150 ft.

Duval County—Mills Bennett Production Co., Yates 2-A, 330 ft nw alg se line of Ranch, from se/cor of sur., thence 467 ft ne at rt/a to lcn in J. Poitevent sur 224 lcn. Magnolia Petroleum Co., Duval Ranch 2(902), 2310 ft n line, 2310 ft w line of Sur 902, ¼ mi nw Lopez field, lcn. Reynolds & Richardson, Drummond 2, 1320 ft n line, 1320 ft w line of GS and SF sur, 308, 1 mi nw Seven Sisters field, lcn. Taylor Refining Co., Parr 1, 330 ft nw line, 330 ft sw line of n/4 of M. Rogers sur. 134, 3 mi nw Muralla field, lcn.

Gonzales County—Continental Oil Co., Gatline 1, 1100 ft s line, 1500 ft w line of 224-ac tr., in William Newman sur. 8 mi sw Gonzales, drl 200 ft.

Guadalupe County—F. D. Spratt, Zuehl 1, 700 ft se line, 1700 ft sw line of Claribourn Rector sur, west of Seguin and 1½ mi sw of Marion, drl 200 ft.

McMullen County—Spice and Loma Oil Co., Edrington 3, 557 ft w line, 900 ft n line of AB and M sur, 57 t/Jackson 1868 ft; t/Chernoskey, 2265 ft, drl 2300 ft. J. A. Walton, Chylek 1, 1980 ft s line, 5130 ft w line of 800-ac tr., in J. A. Herdanez sur., 10½ mi n Tilden, lcn.

Milam County—Taylor Refining Co., Shepherd 1, 150 ft nw line, 150 ft sw line of 80-ac tr., Jose Justo Liendo sur., 2 mi s Thorndale, drl 761 ft.

Nueces County—Jesse George, Chetis 1, 330

BANKRUPT SALE OF OIL PROPERTIES

13 oil leases with 85 producing wells, miscellaneous equipment and supplies, tanks, 8¼", 6⅝" and 4" casing, drilling rigs, oil royalties, etc., belonging to estate of G. C. Kent at Corsicana, will be sold at auction at 112 W. 6th Ave., Corsicana, at 11 A.M., November 16, 1939. For inspection of properties see A. M. Malone, Trustee, 112 W. 6th Ave., Corsicana, Texas.

ft s line, 330 ft e line, sec 145, Delores I & A Co., sur, 6 mi sw Saxet fld, lcn.

Starr County—Magnolia Petroleum Co., Yzaguirre 2, 8150 ft n line, 7550 ft e line of 6904.3-ac, lse V. Sais "La Sal Colorado", gr, 6 mi nw of sumfield, dr water well.

COMPLETIONS

Caldwell County—J. F. Atha, Carter 1, 175 ft most s'ly nw line, 960 ft most e'ly ne line, 96-ac tr., Gideon Pace sur, Dale Limestone oil show, 1748-91 ft, complete, TD 1792 ft, pumping 3 bbls per day.

Cameron County—Sal Vieja Oil Co. and Pure Oil Co., Newberry 2, begin at nw cor of 5986-ac lse and go 800 ft s, thence 4978 ft e to lcn, in San Martin gr., abnd 8445 ft.

Duval County—Magnolia Petroleum Co., Duval Ranch 1 (300), 1320 ft s line, 1320 ft e line, CC and SF sur, 300, 2 mi nw SRC field, t/cole 860 ft, abnd 2240 ft.

McMullen County—Wellington Oil Co., et al, Sanger-Archibald 1, 330 ft n line, 1650 ft w line of C. P. Smith sur, 194, t/hackley 2120 ft, t/government wells, 2840 ft, abnd 2950 ft.

Medina County—D. W. Richardson, Burger 1, 800 ft s line, 2600 ft e line, Medina County School Land sur, 288, abnd 892 ft. D. W. Richardson, Zuberbueler 1, 155 ft n line, 160 ft w line, lot 10, Ewing subd, Medina County School Land sur, 285, abnd.

Milam County—Hays et al, Svoboda 1, 450 ft nw line, 450 ft sw line of 150-ac tr, in M. Punchard sur, t/Pecan Gap, 765 ft, t/Taylor, 1555 ft, abnd 1567 ft.

Refugio County—Hewit & Dougherty, Rooke 3-A, 466 ft n line, 466 ft w line of s 2/3 of w/122-ac of blk 24, subd "C" of La Rosa Ranch, Jose Maria and Julian Miguel Aldrete gr, 4 mi sw La Rosa field, abnd 6520 ft. William F. Morgan-Gulf Oil Corp., Thomas 1, 330 ft sw line, 660 ft se line, Sec 45, Bonnie View subd, Guadalupe Cobian sur, jetted estimated 100 bbls per day 22-gr crude, pref, 6255-57 with 23 shots, 6510 ft.

Victoria County—Dash Production Co. et al, Terrel 1, 466 ft nw line, 466 ft ne line of Lot 2, Colton subd, of Terrell Point Pasture, Antonio Sideck sur, t/Texalari Warreni, 4875 ft, abnd 4928 ft.

Webb County—W. C. McBride, Vela 1, 330 ft n line, 330 ft e line of n½ of sw¼ of sur 265, 6 mi n Oilton, abnd 1840 ft.

Williamson County—Brown, Gardner & Higginbotham, Griffin tr, thence 330 ft w at rt/ang to lcn in Harrison Owens sur, t/midway, 397 ft, t/Pecan Gap, 1873 ft, abnd 2285 ft. Kinsley, Aldridge & Cockburn, Sloan 1, 645 ft most s'ly sl, 1050 ft most w'ly wl of 100-ac lse, Samuel Pharras sur, t/chalk 300 ft, t/buda 765 ft, t/Del Rio 810 ft, t/Edwards 1030 ft, abnd 1075 ft.

EAST TEXAS

COMPLETIONS

Smith County—Dr. T. T. Grant et al's J. W. Waters 1, 1200 ft from s and 330 ft from w lines of J. Stapler sur, 1 mi ne Garden Valley, elev 529 ft, Pecan chalk 3360-3630 ft, Austin chalk 4930-5234 ft, abnd 5893 ft. The Texas Co.'s A. A. Scritchfield 1, 1800 ft from e and n lines of David Page sur A-16, 2 mi nw Bullard, elev 508 ft, Pecan chalk 3610-3997 ft, Austin chalk 4722-4930 ft, top Woodbine series 5124 ft, top sand 5168 ft, top Georgetown 6060 ft to 7265 ft, top Paluxy 7505 ft, abnd 8100 ft in shaly-lime.

TEXAS GULF COAST

FIRST REPORTS

Brazoria County—Texas Co.'s Freeport Sulphur Co. 8, Byran Mound area, 2004 ft n along e line from NWc of S. F. Austin sur, 1454 ft fr e line of 1561-acre tract, C. Areola sur, lcn.

Galveston County—Hebert & Smith's John Harris 1, Galveston Island, center of 20-acre tract, Trimble and Lindley, Section 3, lcn.

Harris County—Dick Schwab's Abe Gordon et al 1, Satsuma, 450 feet out of the swc of an 80-acre tract, M. Wood sur, lcn.

Matagorda County—McDannald Oil Co.'s Shell 1, Collegeport area, center of se 20-acres out of sec of 164.9-acre tract, tract 7, blk 3, D. C. Arthur sur, lcn.

Newton County—W. M. Oil Co.'s Smith 1, 8 mi s of Call, 466 ft w and 466 ft n fr nwc of sec 34, H.T.&B. sur, lcn.

COMPLETIONS

Harris County—Temple Hargrove's Hermann Hospital 1, Addicks area, 1115 ft fr s and 3286 ft fr w line of 40-acre tract, W. Hardin sur, abnd 7510 ft. Cockburn's Burkitt 1, Mt. Houston area, 5150 ft e and 150 ft s of nws, Bundick sur, abnd lcn.

Wharton County—S. G. Harrison's Kountz 1, 3 mi s of El Campo, 660 ft fr n line and 330 ft fr w line of ne sec 51, E.T. R.R. sur, abnd 5510 ft.

WYOMING

FIRST REPORTS

Freemont County—Yellowstone Oil Co.'s 6, ne ne 33-38n-93w, spd with machine.

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KENNEDY Valves are *reliable* because of their simple, sturdy and effective operating mechanisms. They are *economical* because of their durability which assures long service with minimum maintenance expense. Their generous proportions of all parts assures ample *strength* and complete *safety*. The Kennedy line includes a specially designed and exactly suitable type for every oil and gas industry service.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

OIL MEN'S HEADQUARTERS IN TEXAS

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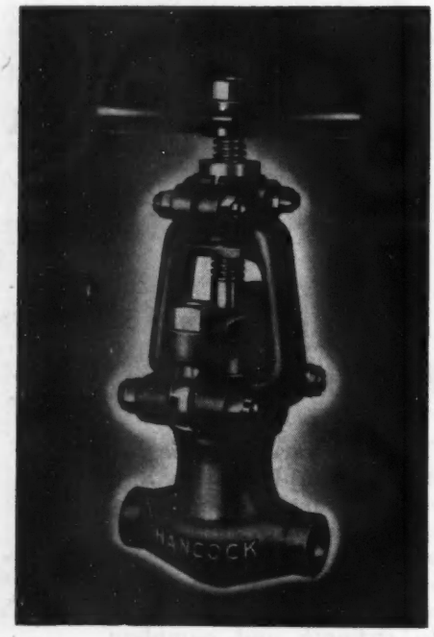
hotels with personality
A. A. A. garages

NOTES FOR THE Equipment Buyer and User

Valve

HANCOCK VALVE DIVISION

Hancock Valve Division of Manning, Maxwell & Moore, Inc., Bridgeport, Connecticut, announces a revolutionary type of steel valve called the Hancock "No-Bonnet-Joint" Valve.



"No-Bonnet-Joint" Valve

This unique new valve has been developed to end leakage through the gasket joint between the valve body and bonnet at elevated pressures and temperature. It does this because there is no joint. This feature is of particular interest to the oil, chemical and other industries handling explosive fluids where the hazard of leakage through a bonnet gasket might be dangerous.

The valves are made for pressures up to 2500 pounds at 1000° F.

The makers state that this new valve weighs less than a fourth as much as a conventional bolted-bonnet valve of the same size and pressure rating.

When a "No-Bonnet-Joint" is welded in the line, the only joint is that of the stuffing box for the stem. The valve may be easily disassembled in the line for regrinding.

The manufacturer claims that the annoyance of leakage through the threads between the valve seat ring and the valve body can never occur in this valve. For it has no threads—its Stellite seat is welded onto the valve body and is an integral part of it. The valve disc is also heavily Stellited to resist wire-drawing and wear.

"No-Bonnet-Joint" Valves are made in one basic size and then tapped, or bored for welding, for ½-, ¾- and 1-inch pipe. This simplification cuts, by two-thirds, repair part and maintenance parts stocks and yet takes care of 90 percent of the small valve requirements on any high-pressure industrial job, the builders state.

Rotary Hose

E. M. SMITH COMPANY

A new Pressure Seal Rotary Hose, without nipples and with a positive pressure seal coupling built integral with the hose body, has been announced by E. M. Smith Company, 600 S. Clarence Street, Los Angeles, California.

According to the manufacturer, the hose is designed to withstand higher pressures than any encountered in drilling wells to any depth, without the hazard of leakage or blowouts around the coupling. The coupling is compact, light in weight, and incorporates a new method of sealing off the fluid by means of the pressure within the hose. As will be noted in the illustration (Figure 1), seepage of the fluid into the clearance between the coupling flange and adapter at "a" and "b," forces the terminal of hose body "c" firmly against the solid wall of the adapter at "d" and into the recess in flange "e," thus forming a positive seal at pressures that are practically nil. Assembly of the adapter to coupling flange is steel-to-steel, with sufficient clearance at "a" and "b" to positively eliminate any possibility of pinching or otherwise damaging the hose. The adapter is made of steel with an extra thick wall, insuring less danger of cutting out and assuring much longer life. Both the adapter and flange are machined to precision fit, securely bolted together, and never require tightening when in service. Full opening throughout the entire length of the hose gives unobstructed flow at all times.

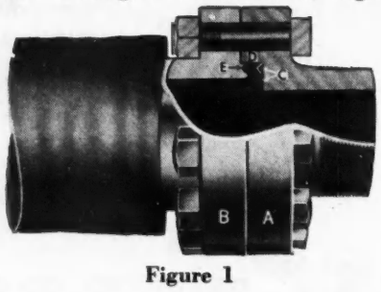


Figure 1

The hose is supplied in two grades—Grizzly Powerflex and Grizzly Cub Red Line. Both are steel armored throughout their length, providing ample strength to withstand any pressures without detracting from its extreme flexibility. Integral construction of the coupling with the hose body and its steel armor prevents any possibility of coupling being blown out. Both grades of the hose also are available with Neoprene oil-resisting and abrasion-proof tube, for use when circulating oil. Further details and descriptive Bulletin No. 20-OF may be obtained by addressing the manufacturer.

Diesel

HERCULES MOTORS CORPORATION

Hercules Motors Corporation of Canton, Ohio, announces the addition of the DFX Series to its line of high-speed, heavy-duty engines. These engines are of horizontal or "pancake" design and were developed primarily for applications wherein limited space requires engines of minimum height. While differing in general design from the well known Hercules vertical engines, these heavy-duty models are of relatively light weight and they feature the well known Hercules characteristics of economy and reliability.

The internal dimensions of the DFX Series of six-cylinder Hercules Diesels are as follows:

Model	Bore	Stroke	Displacement
DFXB	5″	6″	707 cu. in.
DFXC	5¼″	6″	779 cu. in.
DFXD	5½″	6″	855 cu. in.

Model DFXB develops 176 horsepower at 1800 RPM and has a maximum torque of 530 at 1300 RPM. Model DFXC develops 191 horsepower at 1800 RPM and has a maximum torque of 535 at 1300 RPM. Model DFXD develops 193 horsepower at 1600 RPM and has a maximum torque of 645 at 1300 RPM.

In designing the engine special care was taken to assure proper lubrication. The oil capacity of the DFX is excep-

THE OTIS TYPE G "SIDE-DOOR" CHOKE

KICKS-OFF AND PAYS-OFF

Here's the economical way to flow your well when there is not enough pressure in the oil sand. Gas from an upper formation or from a surface source may be utilized with equal ease. Does away with expensive gas lift methods.

The Otis Type G "Side-Door" choke is simple, removable, and will flow your well at controlled ratios. It also makes it practical to clean out and test two separate horizons in the same well, and to produce from each formation independently of the other.

WRITE **OTIS** TODAY
PRESSURE CONTROL
INCORPORATED
DALLAS, TEXAS

MOLY STEELS

ENTER, LEAKY MUD VALVE EXIT, ECONOMICAL DRILLING

A leaky mud line valve lets money as well as mud slip by. The day that it fails to close positively no matter what is going on in the line, is the day its usefulness is ended.

One manufacturer helps to achieve long, dependable life for his mud valves by making the combined stem and gate out of Chromium-Molybdenum (SAE 4140) steel.

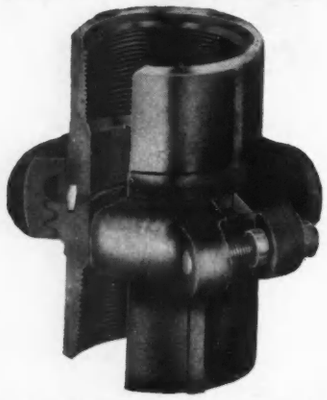
This steel develops the strength and toughness necessary to assure positive closing against pressure and the hardness to resist the cutting action of abrasive materials in the mud. Its employment helps extend the useful life of the valves — an important factor from the standpoints of valve cost and of uninterrupted, and hence economical, drilling.

All over the oil fields, the various Molybdenum steels are making enviable records. These steels and their uses are described in our new booklet, "Molybdenum Steels in Oil Production," which will be sent free on request.

MOLY

Climax Molybdenum Company
500 Fifth Avenue, New York City

Red-Rex
QUICK-JOINT
PIPE UNIONS



Red-Rex Malleable Unions—Designed for 500 lbs. working pressure and tested to 1,000 lbs. Made in both "short hub" and "long hub" types. Identical in construction throughout to high pressure steel union. Interchangeable seal rings.

WRITE FOR PRICE LIST NO. 117

OIL CITY BRASS WORKS
FOUNDERS · MANUFACTURERS · MACHINISTS

BEAUMONT, TEXAS—U. S. A.

Export Office:
136 Liberty St., New York City, U.S.A.
Sold Through Supply Stores

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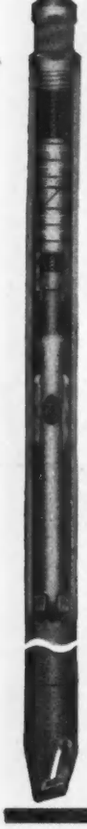


MIDCO
PLUNGER TYPE CLEAN-OUT
BAILER

● **The new model F-5 Clean-out Bailer, equipped with new plunger assembly, eliminates practically all trouble due to sanding-up while in no way detracting from the safety factors or the operating efficiency of the bailer.**

It is specifically designed for cleaning out wells after sand or gravel tamped shots or for gravel packing liners. Tested and proved under the most severe conditions. Write for complete information and new low prices now.

Patent Nos. 2061489, 2090055, 2090209, 2176231

For Rental or Sale

MIDCO BAILER CO.
1006-12 Southeast 29th St.
Box 1542
OKLAHOMA CITY, OKLA.

NOTES FOR THE Equipment Buyer and User

tionally large, due to the use of an oil tank built directly into the oil pan. A scavenging pump keeps the sump of engine dry and delivers all of the oil into the tank from which the pressure lubricating oil pump draws its supply through a screen of large area. The oil is delivered through a Nugent type lubricating oil filter into the main header line of the engine from where the different bearings and surfaces are supplied ample lubricant.

A water pump of abundant delivery assures proper cooling of oil in the engine parts and a carefully planned water circulating system eliminates any tendency toward hot spots.

The fuel pump is built integral with a suitable governor and is driven either from the front of the camshaft or mounted at the top of the cylinder block and driven by chain.

The cylinders of the new engines are of cast iron with removable dry type sleeves made from special alloy.

The crankcase is of cast iron and is cast integral with the cylinder block.

The engines have overhead valves with silchrome exhaust valves.

Pistons are heat-treated aluminum alloy and piston pins are of the full floating type.

The 7-bearing crankshaft is made of special steel with surface-hardened bearings.

Mud Balance

BAROID SALES DEPARTMENT—NATIONAL LEAD COMPANY

The Baroid mud balance, says an announcement, affords a simplified means of determining mud density right at the well. The balance is extremely rugged, but produces reasonably accurate results regardless of slight variations in temperature.

Baroid Mud Balance

It consists of a graduated beam with integral cup and adjustable counterweight, a knife edge, slide, and support.

The cup and beam oscillate in a plane perpendicular to the horizontal knife edge which rests on the support, and are balanced by adjusting the slide on the beam.

The beam is graduated in pounds per square inch per 100 feet of depth and pounds per gallon or pounds per cubic foot. The position of the slide on the beam when in balance indicates the density of the mud in the cup.

The Baroid Mud Balance is constructed in compliance with A.P.I. specifications on equipment for the field testing of drilling mud.

Further details can be obtained by writing Baroid Sales Department at Los Angeles, Houston, or Tulsa.

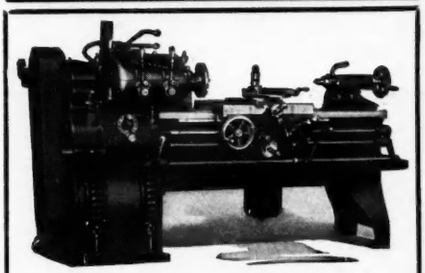
Novo Engine Company Has New Oil Field Representative

N. H. Boardman has been appointed factory representative in the Mid-Continent for Novo Engine Company, Lansing, Michigan.

He will work with The National

N. H. BOARDMAN

Standco
NO-SMOKE
STANDCO BRAKE LINING
Stands the gaff and gets the job done without scoring brake rims. See page 2100 Composite Catalog.
Standco Brake Lining Co.
HOUSTON



The Boye & Emmes Timken Bearing Engine Lathe

COMPLETE LINES

Machine Tools—Metal Working Machinery—Bolt and Pipe Threading Machines—Electric Arc Spot and Butt Welders—Hand Power and Electric Traveling Cranes—Foundry and Forge Shop Equipment.

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Stanley Mair	Chas. Harter
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NOTES FOR THE Equipment Buyer and User

Supply Company, exclusive Novo distributor in the oil fields.

Boardman is taking with him on his first trip through the territory the Novo display trailer which contains the new Novo equipment for the oil field—operating units on the new Novo pumper engines, compressor sets for Diesel engine starting, and self-priming centrifugal pumps.

Henry D. Rolph in New Position With Yale & Towne

W. G. Carey, Jr., president of The Yale & Towne Manufacturing Company, has just announced the promotion of Henry D. Rolph as director of export sales, with headquarters in the Chrysler Building, New York.

Rolph has been with the company for over 30 years. In that time he has traveled around the world four or five times and has visited every country, building up and maintaining the export organization that has made The Yale & Towne Manufacturing Company one of the leaders in the field.

Up until the time that Rolph left Germany on one of the last outgoing trains, he was general manager of Velbert Division. From there he supervised production and sales activities in Europe by The Yale & Towne Manufacturing Company.

H. D. ROLPH

In his new position, Rolph will serve as director and adviser on export sales and operations, not only for the Continental plants, but for the Yale plants operating in Stamford, Philadelphia, Chicago and Canada.

W. S. Proctor Representing Oil City Brass Works

W. S. Proctor has been appointed to the sales force of Oil City Brass Works of Beaumont, Texas.

Proctor is a graduate of Cornell University (M.E.) and for the past 14 years has been associated with Regan

W. S. PROCTOR

Since 1912, this familiar Trade Mark has assured pumpers of greater performance because of more stamina in the cup.

It's How Little they Cost On the Job that Counts . . .

It's not what you pay over the counter but how long a cup performs that determines its real value. One that runs twice as long is worth *more than double* because of the delays it prevents.

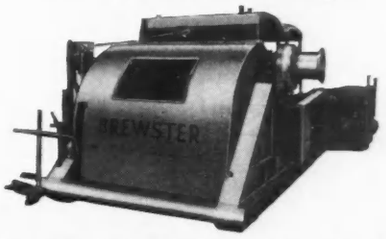
Dragon Valve and Pump Cups — "tailor-made" of toughest materials, processed by our secret formulas, to meet most gruelling tests — assure *that* longer run that makes them COST you less.

Specify them — *by name* — every time — at your favorite supply store.

THE DRAGON MFG. CO.
Marietta, - - - - - Ohio

The World's Standard In Deep Well Cups.

For 6000' Drilling



BREWSTER's Model 225-A

A powerful, compact, unitized, heavy duty draw works, featuring a midship transmission of Brewster design, that allows the entire rig to be more compact, adds additional speeds and reduces chain wear. All moving parts completely enclosed. Oversize brakes, fully equalized. V-belt pump drive, and V-belt compounding drive. Entire unit mounted on structural steel skid-type frame. Skid-mounted engines easily removed. Write for complete details.

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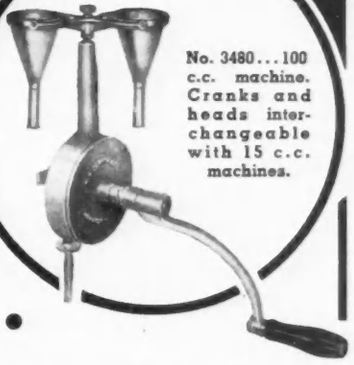
GET ACCURATE RESULTS
Quickly . . Easily . . with
CURTIN CENTRIFUGES



No. 3480...100 c.c. machine. Cranks and heads interchangeable with 15 c.c. machines.

You can maintain your required speed for the period of the test with much less effort. Curtin Centrifuges, proven world-wide, are heavy duty, rigidly constructed, and extremely simple in design. Illustrated bulletin, giving full details, available upon request.

W·H·CURTIN & CO. Inc.
HOUSTON U.S.A. TEXAS

Famous MUDS . . . No. 5

HIS NAME WILL BE
MUD

Famous
MUD PROBLEM
No. 5

WHAT
MAKES CEMENTING JOBS
GO BAD?

QUEBRACHO AND CAUSTIC IN THE MUD WHICH MIXES WITH THE CEMENT AND DESTROYS IT.

HORNKEM
WILL NOT WEAKEN
YOUR CEMENT!

HORN
COVERS the OIL INDUSTRY

Manufactured by
A. C. HORN COMPANY
Chemical Division
Established 1897
LONG ISLAND CITY, N. Y.
HOUSTON LOS ANGELES

Use HORNKEM
. . . . the Balanced Chemicals
to overcome your mud troubles

NOTES FOR THE Equipment Buyer and User

Forge and Engineering Company, lately serving this concern as Mid-Continent manager in charge of sales.

In his new capacity he will make headquarters in Houston and will be in general charge of the sales of Red-Rex Pipe Unions throughout the Gulf Coast area.

R. G. Taylor, Jr. Appointed Guiberson Corporation Engineer

The Guiberson Corporation, Dallas, Texas, has announced the appointment of R. C. Taylor, Jr. as chief engineer, succeeding Albert Pranger who has taken up special field research work in finding and developing new products, for the Corporation.

R. G. TAYLOR, JR.

Taylor began his technical career as a mechanic for Douglas Aircraft at Santa Monica, California, in 1929. Two years later he took up the study of mechanical engineering at the University of Southern California. After completing his studies he served successively with Hogan Petroleum Company, at Bakersfield, as roughneck, and with W. R. Guiberson Company, of Los Angeles, as field sales representative and engineer. On January 1, 1939, he was transferred to Dallas, where he has served as gas-lift engineer.

J. E. Otis Heads Dodge Corporation

Joseph E. Otis, Jr., has been elected president of Dodge Manufacturing Corporation to succeed George C. Miller, deceased.

Otis comes to Dodge Manufacturing Corporation from the presidency of Stewart-Warner Corporation of Chicago, to which office he was elected in 1933. Prior to that connection he was for ten years vice president and general manager of Alemite Corporation. He is, in addition, a director of Cen-

USED POWER UNITS

15 PA-100 International Power Units, 6 cylinder, 5" bore x 5½" stroke—100 H.P.

6 DKHU Waukesha Power Units, 6 cylinder, 5" bore x 5½" stroke—100 H.P.

All of the above are in first class condition and are equipped with Wico magnetos, oil bath air cleaners, oil filters, gas mixing valves, stub shafts, and radiators with sheet steel housing.

Subject to prior sale

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LO-VIS CRYSTALS
CHEMICAL DRILLING MUD THINNER

—ECONOMICAL AND EFFICIENT
—QUICKLY DISSOLVED IN WATER
—READILY ADJUSTS THE VISCOSITY OF DRILLING MUD.

For information, communicate with the manufacturer, or consult your nearest supply company handling Lo-Vis Crystals.

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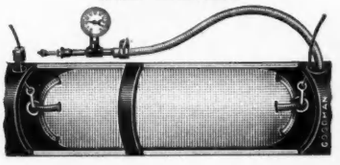
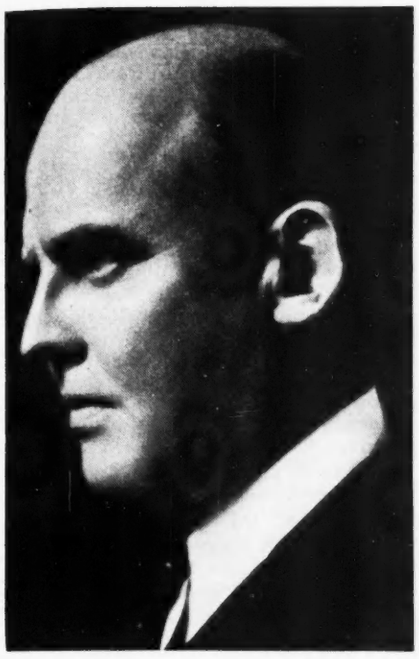
STOPPERS FOR OIL LINES



Send for catalogue
SAFETY GAS MAIN STOPPER CO.
523 Atlantic Ave. Brooklyn, N.Y.

NOTES FOR THE Equipment Buyer and User



JOSEPH E. OTIS, JR.

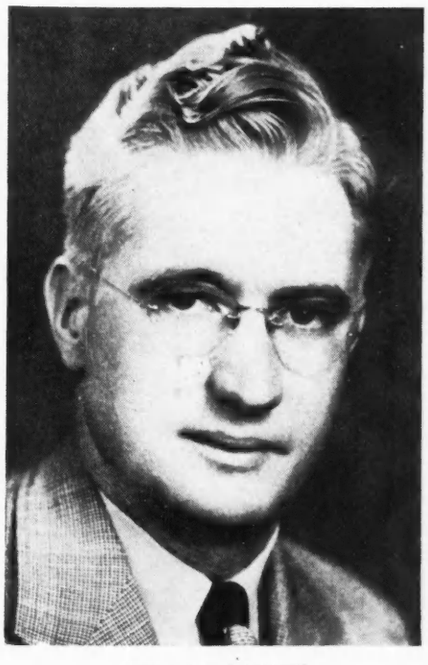
tral Republic Company, Chicago, and of Outboard Marine & Manufacturing Company of Milwaukee.

His present home is in Chicago and it is not anticipated that he will immediately transfer his residence to Mishawaka.

Otis Transfers Farmer To Headquarters at Dallas

John O. Farmer, field engineer for Otis Pressure Control, Incorporated, since 1935, has been transferred to headquarters engineering department in Dallas where he will do experimental and development work on new and established tools, but will spend most of his time on the company's regulator device.

A graduate of Missouri School of Mines in 1933, Farmer was in the engineering department of The Carter Oil Company prior to joining the Otis organization.



JOHN O. FARMER

Republic Completes New Tube Mill in Youngstown

A new tube mill for making ½-inch to extra heavy 3-inch butt-welded pipe in any lengths from 1 foot to 45 feet by the Fretz-Moon process has been put into operation by Republic Steel Corporation in Youngstown.

The first of its kind to be installed in the district, it is to be followed immediately with a second similar unit, it was announced by the company.

These two mills will use a continuous-butt-weld process in which the skelp is formed in a forming mill rather than being drawn through a bell die, as is the usual practice for making butt-weld tubing.

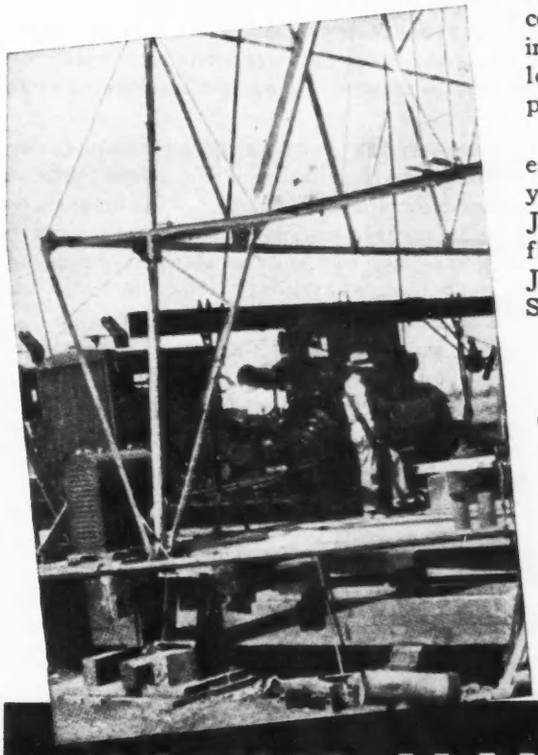
In the manufacturing of tubes by this

GIVES LONGER SERVICE ON THE TOUGH BRAKING JOBS

THE DEEPER YOU DRILL, the more you count on brakes to keep operations fast, dependable and economical. That means linings must be rugged and durable . . . stand up without damaging drums. And that's why more and more drillers are using J-M 420 Rotary Lining on rigs of every type.

This is an entirely new type of lining. Its backbone is a specially impregnated, improved weave of "cabled" asbestos fibers. Crews using J-M 420 report it gives unusually even feed-off with complete load control . . . practically eliminates rim scoring. It lasts longer, needs fewer replacements.

A tryout on your own equipment will convince you of the superiority of J-M 420 Rotary Lining. Get full details by writing Johns-Manville, 22 E. 40th Street, New York, N. Y.



ON THIS Wilson Portable Rotary Rig, Johns-Manville 420 Brake Lining is used to provide long-continued high braking efficiency, reduced drum scoring.

JOHNS MANVILLE JM PRODUCTS

JOHNS-MANVILLE 420 ROTARY BRAKE LINING

process, the skelp is brought to the mill in coils varying in length from 300 to 1200 feet. The skelp is uncoiled, passed through a roller leveler, and the end of each new coil electrically welded to the trailing end of the preceding coil. This makes one continuous strip to be charged into the furnace.

From the welder, the skelp is run out through pinch rolls onto a floor storage table. This looping table allows the uncoiling of the skelp to be interrupted long enough to be welded without interfering with, or slowing down, the front end being charged into the furnace.

As a further precaution against undue tension or buckling being introduced into the hot skelp as it passes through the furnace, it is sent through a second, carefully controlled loop just before being charged. A dancer roll rheostat, introduced in the looped skelp, maintains the size of this loop by speeding up or slowing down the motor driving a second set of loop inch rolls.

A recuperator type furnace, 150 feet long, is used, with three heating zones which are fired with rows of burners using coke-oven gas. The first zone is used as a pre-heating chamber, to bring the temperature of the skelp up gradually. In the second and third zones temperatures in the neighborhood of 2500° F. prepare the skelp for forming.

The skelp is carried through the furnace on tubular, water-cooled skids which minimize the accumulation of scale. A blast of air, directed at the edge of the skelp as it leaves the furnace, serves to remove any dirt remaining on the metal and adds oxygen under pressure which serves to whip up the temperature of the edges of the skelp several hundred degrees.

Forming and welding of the tube immediately follows the exit of the skelp from the furnace. Three sets of grooved rolls, each set consisting of one pair of vertical and one pair of horizontal rolls, handle these operations. The first set is the forming roll. The second and third sets guide the welding process which is promoted entirely by the heat in the skelp itself.

The skelp leaves the rolls at anywhere from 87 to 400 feet per minute, depending on the diameter of pipe being produced. A traveling hot saw, actuated by flag switches, cuts the tube to required lengths.

After being cut to length, the tubes are carried away from the saw by a conveyor, moved slowly across a transfer cooling rack, and delivered to a second conveyor which carries the pipe to a descaler. Here, in addition to removing the outside scale caused by oxidation, a certain amount of straightening and sizing is performed. A third conveyor, on the exit side of the descaler, carries the tubes to a second cooling rack, from which they are removed and sent through the usual finishing processes.

It's a Fact

Johnston

ALTHOUGH GENERALLY CONSIDERED THE "DISCOVERY WELL" IN THE UNITED STATES, RECORDS SHOW THAT COL. DRAKE'S 69½-FOOTER AT TITUSVILLE, PA., WAS ACTUALLY PRECEDED BY SEVERAL OIL WELLS DRILLED MANY YEARS EARLIER! ONE, COMPLETED IN VIRGINIA IN 1808, PRODUCED BETWEEN 30 AND 40 BARRELS A DAY—TWICE THE PRODUCTION OF DRAKE'S WELL. ANOTHER, DRILLED IN OHIO IN 1814, PRODUCED 1 TO 2 BARRELS A DAY. WHILE BOTH WERE "DISCOVERY WELLS", COL. DRAKE'S LITTLE PRODUCER COMPLETED 45 YEARS LATER IN 1859 WAS THE STARTING POINT FOR ACTUAL COMMERCIAL PRODUCTION.

AND THE STARTING POINT FOR ACCURATE AND SAFE FORMATION TESTING TECHNIQUE CAME WITH THE DEVELOPMENT OF THE JOHNSTON FORMATION TESTER. TODAY THIS TOOL IS BEING USED WITH COMPLETE SAFETY TO GUIDE THE DEVELOPMENT OF THOUSANDS OF WELLS OF ALL DEPTHS IN NEW AND OLD FIELDS THE WORLD OVER. IT TELLS, BEFORE CASING IS SET, THE EXACT PRODUCTION CHARACTERISTICS OF EVERY SAND ENCOUNTERED, AND WILL PROVIDE ACCURATE AND DEPENDABLE INFORMATION FOR USE IN DEVELOPING YOUR WELLS MORE INTELLIGENTLY AND MORE EFFICIENTLY—WITH FAR MORE PROFITABLE RESULTS!

THE JOHNSTON ENGINEERING BROCHURE 311, WHICH WILL GLADLY BE MAILED UPON REQUEST, GIVES ALL THE IMPORTANT FACTS ON HOW YOU CAN DRILL YOUR WELLS MORE ECONOMICALLY AND MORE COMPLETELY WITH ACCURATE, SAFE AND DEPENDABLE JOHNSTON FORMATION TESTING METHODS. WRITE FOR YOUR COPY TODAY!

Johnston

$$$$$

FIVE DOLLARS ($5.00) WILL BE PAID FOR EACH INTERESTING OR UNUSUAL FACT CONCERNING THE PETROLEUM INDUSTRY (EITHER IN THE UNITED STATES OR ABROAD) WHICH IS USED IN THIS SERIES OF JOHNSTON ADVERTISEMENTS. SUBSTANTIAL PROOF MUST ACCOMPANY EACH CONTRIBUTION. WHEN TWO OR MORE SIMILAR FACTS ARE SENT IN, THE AWARD WILL BE GIVEN TO THE FIRST ONE RECEIVED ...

M. O. JOHNSTON
Oil Field Service Corp.
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LOS ANGELES, CALIFORNIA
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"Servicing California and Selling Exclusively Foreign"

FORMATION AND CASING TESTING
JOHNSTON

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Oil Field Service Corp.
5702 NAVIGATION BLVD.
HOUSTON, TEXAS
"Servicing Mid-Continent and Gulf Coast"

"WHY SET CASING BEFORE YOU KNOW!".

T. J. Buchanan Appointed Sales Representative for McEvoy

McEvoy Company announces appointment of T. J. Buchanan as sales representative for the West Texas and New Mexico fields.

Buchanan has had wide experience on the oil fields as roughneck, toolpusher and driller and is thoroughly familiar with problems encountered in the field. He will have headquarters at 707-A Carrizo Street, Midland, Texas.

T. J. BUCHANAN

Squeaks from the Bull Wheel

Answer for Insurance Man

"What would your wife do if you should die tomorrow?"

"She'd probably go to the funeral, if it wasn't the day for her bridge club."

Needs Help

"Does this lipstick come off easily?"

"Not if you put up a fight."

Advances

"Young man, I understand that you have made advances to my daughter."

"Yes, sir, I wasn't going to say anything about it, but now that you have, I wish you could get her to pay me back."

Naturally Not

"Lady, there's no red light on your car."

"No, sir, it's not that kind of car."

Easy Profit

"I see you raise hogs almost exclusively down here. Do they pay better than corn and potatoes?"

"Wall, they don't suh, but hogs don't need no hoein'."

The Proof Was There

"It says the man was shot by his wife at close range."

"Then there must have been powder marks on the body."

"Yes, that's why she shot him."

Appropriate Name

"You say your baby's name is Opium? What an odd name. You know opium is a product of the wild poppy, don't you?"

"Yassum, an' if dey evah wuzz a chile had a wild poppy, she's got one."

Ouchica!

Three weeks after Jessie reached college she began signing her letters "Jessica." Brother Tom didn't like it. He replied:

"Dear Jessica: Dadica and Momica have gone to visit Aunt Lizzica. Uncle Samica is buying a new machine, but doesn't know whether to get a Chevica or a Fordica. The cowica had a calfica, and I was going to call it Nellica, but changed it to Jimica because it was a bullica. Your loving brother Tomica."

And What About Inflation

"What are the properties of heat and cold?"

"Heat expands and cold contracts."

"Correct. Give an example."

"In summer, when it's hot the days are long, and in winter when it's cold the days are short."

Her Perfect Heaven

"Don't it strike you that's a queer-shaped harp that the new woman angel is lugging around?" asked St. Peter with a perplexed frown.

"That isn't a harp, that's a radio set," answered Gabriel, with a pitying look at his superior. "She's enjoying her husband's howls from Station HELL."

Invincible

"Rastus, did your father go to the lodge meeting last night?"

"Naw, sir! We had to postpone it."

"Postpone it? Why?"

"Why? Because de Grand All-Powerful, Invincible, Most Supreme, Unconquerable Potentate done got beat up by his wife."

And Used It

"My wife explored my pockets last night."

"What did she get?"

"About the same as any other explorer—enough material for a lecture."

Class Galore

Not much class to the people in this town, is there?

Class? Say, we've even got two bread lines here—one for white and one for rye.

Sorry

"You mean, Liza, your husband got concussion of the brain in the accident, not conclusion of the brain."

"No, suh. Ah means conclusion of de brain. He's daid."

Fish Story

Grover Cleveland, when President of the United States, was a great fisherman. He told the story of the old darkey who risked his life to save a young negro from drowning. He asked the old darkey if the young lad was his son. "Oh, no, sah; he was not my son." "Well, was he a relative that you risked your life for him?" "No, sah; he not a relative of mine." "Then why plunge in that reckless way and drag him out?" "Well, sah, the fact is, sah, that the boy had the bait, sah."

Playing Safe

As soon as you are asleep the angels will come into your room and guard you.

Oh! Well, take my chocolates off the dressing table and put them under my pillow, please.

One Sided

"I don't feel right about Jim Smith!" Farmer Jones said to his wife. "He's just invited me to be a pall bearer again. He invited me to be a pall bearer when Mame, his first wife, died, an' he invited me again when Susie, his second wife, died. An' now his third wife's died an' he's invited me again. It don't seem right for me to accept all them favors an' not do him any."

It Worked

"Johnny, it's cruel to tell you, but your sister promised to become my wife at the party last night. Will you forgive me for taking her away?"

"Aw, shucks, that's what the party was for."

Home Town Item

Miss Burgie Bittle has become a professional soprano. She says she is singing to keep the wolf from the door. It ought to work.

Looking Ahead

A mother noticed that her little daughter was hiding her crusts under the edge of her plate.

"Dorothy," she said severely, "you may live to want those crusts."

"I know, Mummy," replied the child, "that's why I'm saving them."

Magic

"I take off my hat to no one."

"How do you get your hair cut?"

Gott
WATER CANS
& COOLERS
GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today!
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Made in 1½, 3, 5, and 10 gallon sizes.
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Made in 3, 5, 8, 10 and 20 gallon sizes.
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WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

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ACCURATE ALIGNMENT

HOWCO ★ MEASURING DEVICE

Question: Why does an oil operator use a measuring device?

Answer: (1) To measure the depth of a well; (2) for running crooked hole survey instruments, and (3) for running instruments for obtaining bottom hole pressures, temperatures, fluid samples, etc.

Question: Why is the HOWCO Measuring Device accepted, year after year, as the *standard* method of well measurement?

Answer: Because it provides exactly what the operator wants: (1) immediate reading at the surface and (2) accuracy!

Available in Standard, Heavy Duty and Extra Heavy Duty Types and with power hook-ups to meet every requirement. See your Composite Catalog.

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"LARKIN Makes ANY Type of SIDE-HOLE Cementing Equipment— and MAKES IT RIGHT!"

Operators who are confronted with special cement jobs of any type, will find that Larkin side opening equipment will meet the requirements, regardless how special the job. It costs no more to have the best—specify "LARKIN."

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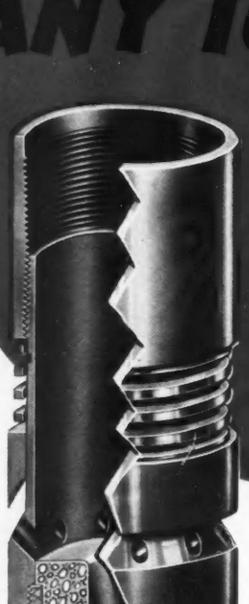


FIG. 502
Uniflow Guide Shoe

FIG. 501
Formation Pack Shoe

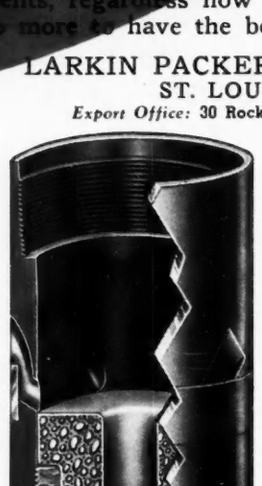


FIG. 503
Up Whirler Guide Shoe

FIG. 504
Down Whirler Guide Shoe

LARKIN PACKER CO.

The "CARDWELL" FRICTION CLUTCH

This clutch enables "Cardwell" rigs to "drill-up" through cave-ins, eliminates 90% of the hazard of stuck tools and stops the destructive shock and pounding of jaw clutch engagement.

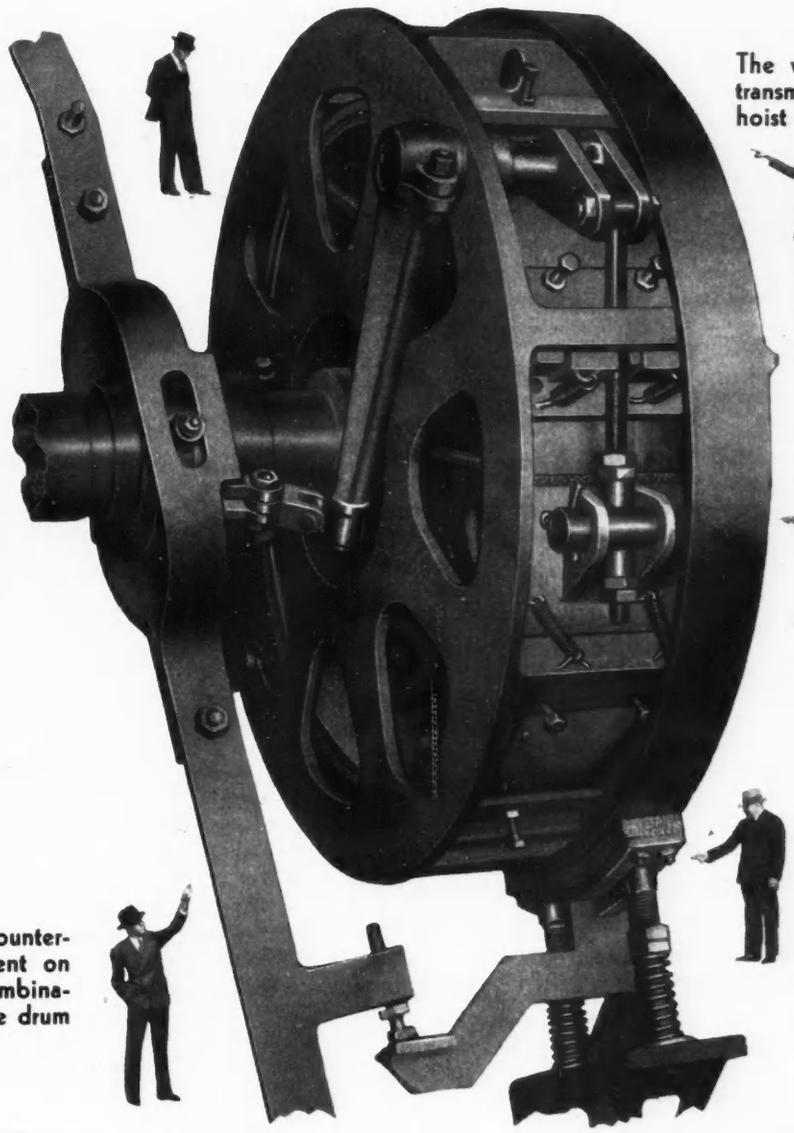
Over 480 in Use Since 1936 Without a Breakdown or Part Failure

The "Cardwell" friction clutch can be slipped without wear or heating and may be engaged quickly or slowly as the job demands.

Every wearing part is heat-treated. There is nothing to wear out but the 3/8"x6" standard lining that can be purchased anywhere.

No time is lost in engaging friction clutches. They pick up the load without grabbing or jerking and hold firmly when fully engaged.

Friction clutches on the countershaft are standard equipment on "Cardwell" draw works, combination drilling rigs and double drum servicing hoists.



The wedge-action, self-energizing bands transmit the power and torque to the hoist drums.

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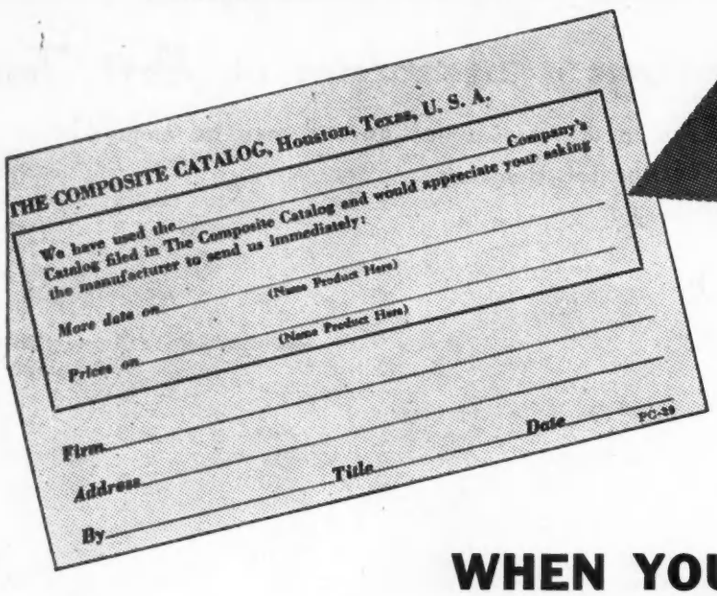
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If you fail to find all the data you need on any piece of equipment, whether described in The Composite Catalog or not described therein, just fill out a blue card and drop it in the mail. The data requested will be sent promptly.

THE COMPOSITE CATALOG
OF OIL FIELD AND PIPE LINE EQUIPMENT

LOOKING AHEAD

WITH THE EDITOR

Comprehensive Article on Gas-Lift Methods Coming

BEGINNING in an early issue, THE OIL WEEKLY will publish serially a thorough study of the range of application of gas-lift methods, said study representing the results of an investigation conducted under auspices of the American Petroleum Institute's Production Practice Committee of the Production Division.

This study, which is accompanied by more than 50 illustrations, makes suggestions for practical application of the results to actual production problems.

Pressure held against the formation and gas requirements are evaluated for: (1) straight gas-lift; (2) plunger lift; (3) intermitters; (4) gas displacement pumps.

ANOTHER exceptionally worthwhile paper scheduled for early publication in THE OIL WEEKLY deals with cooperative problems involved in cathodic protection. The article is one of the somewhat rare type equally valuable to the administrative executive and to the engineer. It points out that while the directed control of cathodic protection soon may become a serious concern of all branches of the industry, certain simple steps may be taken today to decrease ultimate and inevitable liabilities. Every pipe line company should be watching for the forthcoming "Cooperative Problems Involved in Cathodic Protection."

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.